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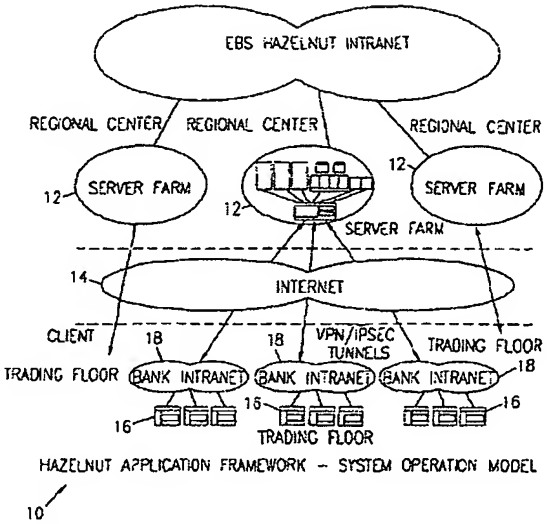

(57) Abstract: A conversational trading system allows a plurality of instruments, for example financial instruments such as foreign exchange products, to be traded from a single user interface. The interface includes a deal stack comprising a deal list, a deal detail panel and a button bar. The deal list displays deal related information such as status, party, instrument and an instrument and status related string in a form common to all instruments. Whenever a new quote request is detected, a new conversation is started. This may be with the same party as an existing conversation. The conversation is parsed line by line and the user can edit it before it is sent to the counterparty. The parser does not store any record of the deal and, along with the interface, may be downloaded as an Applet.

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CONVERSATIONAL DEALING SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Application No. 09/753,940 filed January 3, 2001 and U.S. Provisional Application Serial No. 60/308,618 filed July 30, 2001. The entirety of these applications are hereby incorporated by reference.

FIELD OF THE INVENTION

This invention relates to dealing systems and in particular to conversational dealing or trading system dealing in instruments between parties. It is particularly, but not exclusively, related to financial trading and dealing systems which trade various financial instruments. The invention is particularly concerned with the parsing of conversational messages input into the system by traders.

BACKGROUND OF THE INVENTION

It has become commonplace to trade financial instruments using computer systems. These have, to a large extent, replaced open outcry trading methods in which traders traded face to face on trading floors. Various computerised trading systems have evolved for trading different instruments such as foreign exchange spot (FX Spot), forward rate agreement (FRAs) and other instruments. Some systems are anonymous, in that the counterparties to a trade do not know the identity of other counterparties in the market until a deal has been done. Successful anonymous trading systems have bee operated for a number of years by EBS Dealing Resources, Inc. and by Reuters plc. The latter company has also run a conversational dealing system known as Reuters 2000/1 which computerises the conversational exchange between traders in reaching a deal allowing deal negotiation between traders.

Existing dealing systems have tended to support traders trading a single instrument. In large institutions, where a given trader only trades a single

instrument this does not cause any difficulties. However, in smaller institutions, a foreign exchange trader, for example, may trade several types of instruments for one or more currency pairs. It is inconvenient for such a trader to have to use several different trading systems or to have to use a mix of computerised systems and traditional trading methods such as voice brokers.

There is, therefore, a need for a system which integrates trading of a number of instruments on a single platform to simplify trading, particularly for traders in smaller institutions.

Financial markets such as foreign exchange markets can operate at extreme speed. Dealers are required to react to market activity nearly instantaneously to avoid losing potential deals. As a result, the trader terminal must be visually very simple and easy for the trader to assimilate new or changing information. The ability to trade a number of different instruments from a single terminal adds to the complexity and can lead to more information being presented to the trader.

At any one time, a trader may be involved in many deals, some which will mature into done deals and others which will be cancelled at some stage prior to completion. These deals may be in a variety of instruments. Each of these deals will have instrument specific information which the trader must be able to see to enable him to make the deal. However, displaying all this information on the screen makes the screen visually hard to interpret for the trader and is, therefore, not desirable.

Reuters plc operates a conversational dealing system under the trademark REUTERS DEALING 2000/1. In this system, traders type conversation text into the terminals which relates to deals they want to execute. The conversation text may have no deal related content or may include information related to the deal. The system passes the conversation as it entered into the system, on a character by character basis. When a deal is completed the parties are asked to confirm the deal and may renegotiate the deal terms.

Although the Reuters 2000/1 system has operated successfully for a number of years, we have appreciated that the approach taken to parsing has a number of disadvantages. The present invention, in its various aspects, aims to overcome those disadvantages and to provide improved parsing in a conversational dealing system and, in turn, to improve the usefulness and acceptability of such a system to traders and institutions.

SUMMARY OF THE INVENTION

A first aspect of the invention resides in the use of parsing to detect terms in conversation which indicate a change in deal status.

More specifically, there is provided a conversational dealing system for trading instruments between counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader conversational messages including deal related information, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational messages, said parser comprising: means for analysing the conversational messages to detect a change in the status of a deal, the deal having a plurality of possible statuses; means for analysing the conversational messages to detect deal related information relevant to said detected status of the deal; and means for returning a parsed message comprising the deal status and relevant deal related information to the user interface.

Embodiments of this aspect of the invention have the advantage that parsing of conversations is greatly simplified. In the first instance the parser needs to detect changes in status between one of only a few possible deal statuses. When a change of status has been detected there is only a limited number of terms of deal related information that are relevant to that status making parsing very simple.

A second aspect of the invention performs parsing on complete conversational messages provided from the terminal. More specifically, there is provided a conversational dealing system for trading instruments between

counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader deal related information as conversational messages, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational message, wherein said parser includes: means for receiving complete conversational messages from the user interface and for analysing the complete messages to detect deal related information and form a parsed message; and means for returning the parsed message to the user interface.

Parsing complete lines of conversation is highly advantageous as it enables a structured approach to parsing to be adopted in which the message can be parsed to look for a first function, such as change in deal status, and then parsed in a manner dictated by the first function. This is not possible in prior art systems which parse character by character.

A third aspect of the invention enables the user to view and alter parsed messages before they are sent to the counterparty.

More specifically, there is provided a conversational dealing system for trading instruments between counterparties, comprising: a plurality of terminals each having a user interface for inputting and displaying to the trader deal related information as conversational messages, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational message, wherein said parser includes: means for analysing conversational messages from the user interface to detect deal related information and form a parsed message; means for returning the parsed message to the user interface and displaying the parsed message; and means for confirming or altering the parsed message content prior to transmission of message to a counterparty trader terminal.

Once a parsed message has been formed, the user may accept it, edit it or cancel it. The counterparty will only see the final message that is sent, if any. Thus, if a trader makes a mistake, changes his mind, or the market conditions

suddenly change, the trader can change or delete a message that would otherwise have been sent. Not only is this convenient to the trader, it is highly advantageous to the trader's market position as he does not have to reveal his trading position and his thought processes until he is happy with his position. In prior art systems, in which conversations are parsed as they are typed in, this is not possible. Although either party can cancel or try to amend the terms of a deal once it has been completed, they have, by then, revealed their hand to the counterparty, which is undesirable.

A further aspect of the invention enables more that one conversation to be current with the same counterparty at any one time. If the parser detects information relating to a new deal at any time, regardless of the status of the present deal, it notifies the user interface and a new conversation, or deal, is initiated.

More specifically, there is provided a conversational dealing system for trading instruments between counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader deal related information as conversational messages, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational messages, wherein said parser includes: means for analysing conversational messages from the user interface to detect deal related information and form a parsed message; and means for returning the parsed message to the user interface and displaying the parsed message; wherein the system further comprises: means for initiating a deal with a counterparty on request from a trader; and means for initiating a further deal with the same counterparty on detection by the parser of deal related information relating to a deal additional to a current deal.

A system embodying this aspect of the invention has the advantage of being highly flexible and reacts to the way in which traders work and think. If a trader, at any stage of negotiating a deal with a counterparty, asks for a quote on

an unrelated deal, the system will detect that quote request and initiate a new deal. Both deals, and any further new deals can progress together but completely independently of each other. Prior art systems only enable a single conversation to be held within a given counterparty at any one time.

In a further aspect of the invention, a parser is dumb in that it retains no knowledge of the deal making process. The parser parses a line of conversation and returns a file comprising the deal status and related deal information.

More specifically, there is provided cconversational dealing system for trading instruments between counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader deal related information as conversational messages, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational messages, wherein said parser includes: means for analyzing conversational messages from the user interface to detect deal related information and form a parsed message; and means for returning the parsed message to the user interface and displaying the parsed message; wherein on returning the parsed message to the user interface, the parser retains no record of the parsed message or the deal to which it relates.

Embodiments of this aspect of the invention have the advantage that the parser is very simple. Furthermore, as the parser stores no historical information it is easy to download it to the user, for example as an Applet, each time the user logs on to the system. This makes the system suitable for use in an Internet environment and makes it very easy for traders to access the system as they not have to load the parser onto their workstations themselves. It also reduces the overheads on IT support in user organisations such as banks or other financial organisations.

In a further aspect of the invention, a level of filtering of parsed messages is introduced between trader terminals. This allows parsed messages to

be checked to ensure that they conform to the business or operating rules of the system.

More specifically, there is provided a conversational dealing system for trading instruments between counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader deal related information as conversational messages, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational messages, wherein said parser includes: means for analyzing conversational messages from the user interface to detect deal related information and form a parsed message; and means for returning the parsed message to the user interface and displaying the parsed message; wherein the system further comprises: a server for receiving parsed messages including deal related information from trader terminals and distributing the parsed messages to destination terminals, the server including means for check the acceptability of parsed messages sent from a trader terminal prior to communication to a destination trader terminal and for rejecting unacceptable parsed messages without passing the rejected message to the destination trader terminal.

This aspect of the invention has the advantage that illegal deals can be filtered out without a deal being agreed on by the parties. Moreover, the filtering may include a credit check to ensure that each party has sufficient resources to complete the deal. A credit check may be integrated into an institutional credit system which typically set limits on the trades that can be completed with any counterparty over a set period of time.

If the parsed message is rejected as unallowable, the intended recipient has no knowledge that the message was ever sent. This is advantageous as the trader does not disclose information as to his dealing position except when trades are possible.

This aspect of the invention is also advantageous as it prevents traders wasting time, often in a very volatile and fast moving market, on trades which would otherwise be rejected as unallowable once they had been concluded.

In a further aspect of the invention, messages displayed at the user interface are colour coded according to origin.

More specifically, there is provided a conversational dealing system for trading instruments between counterparties, comprising: a plurality of trader terminals each having a user interface for inputting and displaying to the trader conversational messages including deal related information, the trader terminals communicating with each other via a communications network, wherein the conversational message are displayed in a colour coded form to indicate to the user the origin of the conversational messages.

In one preferred embodiment, messages generated by the user are shown in a first colour, messages generated by a counterparty in a second colour, and messages generated by the system, in a third colour. System messages may include parsed messages based on user or counterparty input conversational messages.

Preferably, warning messages, error or danger messages are each shown in a further colour.

This aspect of the invention has the advantage of making the user display much more intelligible. This is very important in a fast moving market in which a trader may have many deals pending at any time and in which he is required to analyse deal information very quickly.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will now be described, by way of example only, and with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of a trading system;

Figure 2 is a further schematic diagram showing the main functional components of a trader terminal;

Figure 3 is a view of the user interface of a trader Terminal, according to a first embodiment of the invention;

Figure 4 is a similar view to figure 3 showing a number of conversation panels;

Figure 5 is a view of a deal stack within the user interface and showing the deal detail panel;

Figure 6 is a further view of the deal stack and deal detail panel with a different deal highlighted in the deal detail panel from figure 5;

Figure 7 is a further view of the deal stack showing a deal detail panel for a completed Forwards deal;

Figure 8 is a further view of the deal stack showing the deal detail panel displaying an error box;

Figure 9 is a still further view of the deal stack showing the deal detail panel displaying potentially modifiable fields highlighted;

Figure 10 shows the deal stack with the deal detail panel showing a completed F/X Spot deal including the value of the done deal;

Figure 11 shows the deal stack with the deal detail panel showing a forward deal with a Spot Rate Query message; and

Figure 12 shows how the Spot rate query message of figure 11 appears at the counterparty's deal detail panel as a warning message.

Figure 13 is a flow chart showing an overview of the parsing process;

Figure 14a and 14b are flow charts showing the parsing process in more detail;

Figure 15 is a screen shot of a second embodiment of the user interface showing a parsed message entered by the maker;

Figure 16 shows the screen of Figure 15 when the parsed message has been sent but not picked up;

Figure 17 shows the taker's interface when the parsed message is received;

Figure 18 shows the taker's interface when the system is waiting for the taker to quote;

Figure 19 shows the maker's screen when a quote is received;

Figure 20 shows the maker's screen when a deal has been finalised;

Figure 21 shows an example of a warning message and an error message together with a second conversation being initiated out of the first conversation; and

Figure 22 shows a further example of warning messages.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The system illustrated schematically in figure 1 is a conversational dealing system for trading a variety of financial instruments. Instruments which may be traded include, but are not limited to, foreign exchange (F/X) spot, forwards, and outrights. Although the following description will concentrate on F/X spot and forwards, it is to be understood that this is purely for the purposes of illustrating the invention and that the invention is not limited to any particular financial instruments or even to financial instruments. It is equally applicable to the trading of any other fungible such as commodities, metals, etc.

The illustrative system is preferably an internet based system in which traders communicate with other traders from trader terminals across the internet. Trades are agreed upon by an exchange of messages between traders. The message content is automatically parsed by the system to identify deal related content for processing. Once the parsing has detected a deal status change, the remainder of the deal processing is handled by the deal stack. Deal status change need not be entered by conversation but may be directly input from the traders terminal, for example by using on screen function buttons or keyboard driven menus. Thus, the system also allows users to deal by a simple exchange of deal content data which is non-conversational and by a mixture of the two methods.

The following description gives an overview of the trading system within which the user interface is used by traders to execute deals. However, it is to be understood that this is only one example of a trading system suitable for use with the invention. The invention is not limited to any particular trading system but is applicable to any system in which a trader is trading multiple instruments. Such

a system may be internet based or operate on a conventional public or private network. It may use a distributed architecture or operate using a central host or may be configured in any other manner.

Referring now to figure 1, a trading system 10 disclosed is based on a plurality of server farms 12 connected through a system intranet 14. The server farms 12 communicate with trader terminals 16 at bank trading floors through a communications network, here the Internet 14, and local bank intranets 18. The majority of deal processing takes place at trader terminals 16 with deal messages being passed by the server farms 12 to counterparty trader terminals 16. The server farms also pass done deal information to bank back office systems (not shown) to enable deal tickets to be produced and trades to be settled. The deals are input into the system 16 either directly by the trader or through parsed conversation exchanged between traders, as will be described. Parsing takes place at the trader terminals.

Figure 2 shows the user terminals 16, as well as one server farm, schematically. A plurality of trader terminals 16, two of whom are shown, communicate with each other, and with other terminals (not shown) by exchanging conversational messages via a system server forming part of the server farm. Each client terminal 16 has three logical components: a user interface 20, a communications module 22 and a parser 24. The client terminals are typically a suitable computer such as a PC or workstation having conventional components such as input devices including a keyboard and a mouse, and a monitor, which presents the user interface to a trader.

The trader terminals 16 and the server 26 communicate via a communications network which may be a private network or a public network such as the Internet, for example via the World Wide Web, as shown in Figure 1. The communications module may, for example, be a modem at the trader terminal or client local area network, or some other suitable device.

The parser 24 performs an analysis of conversations exchanged between trader terminal and extracts deal related information from those conversational

exchanges as will be described in detail. The functional components of the system: the parser 24, the user interface 20 and the communications software for the communication module 22 are preferably downloaded to the trader terminals as an applet each time a trader logs on to the system. This means that the client terminal does not have to store any software in order to access and run the system, all of which may be done by accessing a suitable site on the World Wide Web. The system 10 may be used by a trader no matter where he or she is located. However, as will be seen, the system is intended to trade very large amounts of currency and currency products, as well as other fungibles, and, in practice, is restricted to banks and other institutions of proven credit worthiness. Nevertheless, the portability and flexibility of the system is advantageous to traders and is not available in prior art conversational dealing systems in which access is limited to a proprietary network.

In the preferred embodiment, the sever 26 includes a deal server 28 and a chat server 30. These form a part of the server farm of figure 1. The deal server acts to verify the details of proposed deals against business and banking rules and allows other checks to be made before a proposed deal is made visible to a potential counterparty. This may include the deal maker's creditworthiness; that is their ability to settle the trade they are proposing. The chat server 60 handles the exchange of conversations between clients on the network. As will be discussed, conversational messages, which may or may not contain deal related information, are passed between clients via the chat server. A client can participate in several conversations at any given time and can conduct several different conversations with a particular other different client simultaneously, allowing two parties to have two or more deals under negotiation at the same time.

Figure 3 shows the user interface which is displayed at each trader terminal. The display comprises a number panels. To an extent the panels displayed are configurable by each trader according to his or her preferences although some of the panels are permanent. In essence the display 100 includes

three notional containers 102, 104 and 106. Container 102 is the upper of the three containers and extends across the width of the display, beneath the upper container is a lower left container 104 and a lower right container 106. To the left of the containers is a configurable icon display 108.

The upper container only displays panels which require the full width of the traders display area. Each of the panels which can be displayed is assigned one of two priorities. A panel with priority 1 may not be obscured. A panel with priority 2 may be covered or given zero height. In either circumstance the panel data model is maintained when the panel is invisible allowing the data contained to be displayed when they become visible again.

There are three permanent panels each of which have priority 1. These are shown in figures 3 and 4. In the upper container 102 is displayed a deal stack 110, in the lower left container 104 is displayed a conversations area 112 containing a number of conversations in which the trader is participating, and in the lower right container is displayed an incoming conversations panel 114 in which incoming conversational messages are displayed. The incoming messages include conversations in which the trader is not yet participating, and may never, participate.

The optional panels which the trader may choose to display include:

A Trader Deal panel (not shown), assigned a priority 1 and showing all the deals done by the trader and which may be displayed in either of the two lower containers;

An Overview panel (not shown), assigned a priority 1 and positioned in either of the two lower containers;

A Deal Log panel (not shown) having a priority 2 and showing deals logged by the system and displayed in the upper container 102;

A Rates Area 116 which displays the current trading rates on the system for various currency pairs and which is assigned a priority 2; and

A Conversation Archive (not shown) positioned in one of the lower containers and which has a priority 2.

As can be seen from figure 4, some of the panels include a button bar along their lower edge. The various functions of the buttons will be discussed below. The conversation panels button bars include a float button. Clicking on this button enables the position of the panel to be varied around the screen, even outside the window in which the entire system is displayed. This may be useful, for example, when the client wants to display several optional panels or there are a larger number of conversations open. In the embodiment described up to ten conversations may be ongoing at one time, although it will be appreciated that this is an arbitrary number which may be varied.

The incoming conversations panel lists only incoming conversational messages. In the example of figure 3, there is a single conversation displayed. At this time, the client is not a party to the conversation. The conversation is displayed under four headings: ID, which is the unique conversation identity number; Time, which is the time at which the conversation was initiated by the counterparty; From, which is the identity of the counterparty initiating the conversation; and Message, which is the latest message line in the conversation. In the figure 3 example, the message A Conversation started by peter@CITQ' has been sent by a trader identified as Peter at the institution having the identifier CITQ. The conversation was initiated at 13.34.54 and has the ID No. 1791. Each new conversation is identified with an ID No. It is also associated with a DealInfo file which is a set of deal related information including the deal type: Spot FX, FX Outrights, Forwards etc.; the deal amount, the deal direction (maker, taker) and other necessary information. A DealInfo structure also includes the current status of the deal. Central to the manner in which conversations are parsed is the concept of a deal being in one of a number of states indicating how far the deal has progressed. In essence, these states begin with No State, which relates to conversation with no deal related information; RFQ which is the state in which a request for a quote has been identified by the parser; Quote, in which a quote has been identified by the parser in response to

the RFQ; and Buy/Sell in which the deal is completed by one party agreeing to buy or sell at the price quoted.

Underneath the Incoming Conversations panel is a button bar with buttons marked 'Pick Up', 'Clear', 'Transfer' and 'Chat'. To select a conversation for action the client clicks on the conversations line, which will cause that conversation line to be displayed in a different colour from any other conversations in the panel (in the present case it is the only conversation). If the client clicks on the 'Pick Up' button, a Conversation panel is opened in the bottom left container 104 for the selected conversation (Fig. 4). At this point the system causes all other parties to whom the conversational message has been sent to display the message 'username has joined the conversation'. When a party joins a conversation they see that conversation only from the point at which they joined it. Once a first person has picked up an invitation to chat to a deal code, that invitation will be withdrawn from all other parties to which the invitation was sent.

Once a trader picks up a conversation, the conversation is removed from his Incoming Conversations panel.

The 'Clear' button, when clicked, causes the selected conversation to be cleared from the display. When a conversation is cleared, the conversation initiator will receive a 'Conversation declined by username' in their own Conversations panel.

The 'Transfer' button is only enabled if a conversation is bilateral. If clicked, the conversation will be transferred to the trader or Deal Code specified in the Transfer Conversation dialog. Rules may be established defining to whom, if anyone, a given trader may transfer a conversation.

The 'Chat' button invokes the launching of a conversation session and also opens a conversation panel in the conversation area. Multiple conversations may be opened with the same person, although a warning box will preferably be displayed to notify the client if he is attempting to open a second or subsequent conversation with the same person.

All the functionality of the button bar may be displayed, alternatively, as a drop down menu to enable operation by keyboard only.

Referring now additionally to figures 5 to 7, the deal stack shows a list of deals in which the trader is involved in and which are pending or completed.

The Deal Stack 130 comprises the following major components: A Deal List 132, a Deal Detail Panel 134, and a Button Bar 136. The deal list presents information about a deal under four headings: the deal Status 120, the Time 122, the Counterparty (Trader/Bank) 124, the Instrument which is being traded 126 and the Deal 126 that is being made. The information presented in the deal list 132 is independent of the instrument being traded. This is achieved by the use of the deal detail panel and is extremely advantageous as it allows the deal stack to be presented to the client in a very simple manner, with the minimum amount of information and in a manner which is easily assimilated by the trader.

To understand the text of the Deal field 126 it must first be appreciated how deal related information can be put into the system and how the system understands that information as relating to a deal. Deal information may be submitted to the system in one of two ways: direct deal input or parsing of conversations. Parsing of conversations will be discussed in greater detail later. At this stage it is sufficient to appreciate that parsing involves the system analysing conversational messages to determine whether they contain any deal related content. If they do, then the deal is displayed in the deal list.

A deal is commenced by a 'Request For a Quote' (RFQ) input into the system by a trader. An RFQ is an indication by a trader that he is interested in trading. The first line of the deal list in figure 3 shows an RFQ. Here, the trader has put a request out to the market to trade $2.5 Million in the US$/Canadian dollar market. At this stage no bid or offer prices are given and there is no indication whether trader wishes to buy or sell. The RFQ could have been input into the system as a conversational message or by the trader making a direct input, in which case he hits the RFQ button in the deal button bar. This will display a panel asking for the instrument, the currency pair and the amount.

Thus a deal may be initiated either by the entry into the system of a direct quote request or by the detection of a quote request by the parsing of conversations. For convenience the latter may be referred to as an indirect quote request.

When an RFQ is received or detected, the system determines the text that will be displayed in the deal list. This will either be a transliteration of the direct RFQ or a representation of the parsed, indirect RFQ.

A number of deal statuses are defined for each instrument. Each of these has an associated status string which is displayed in the Status field, a deal string which is the text displayed in the deal field and an understood description.

Some examples of deal statuses for F/X Spot are as follows:

Taker	Maker	Description
Pre Submit-Taker		RFQ is being transmitted t server.
Pre Pickup-Taker	Pre Pickup – Maker	RFG has reached maker's screen.
Pre Pickup-Taker	Pre Pickup To Deal Code – Maker	RFQ sent to a Deal Code has reached a member of tl Deal Code's screen.
Pre Quote – Taker	Pre Quote – Maker	Maker has picked up
Pre BuySell – Taker	Pre BuySell – Maker	Maker has submitted quot
Pre Re-quote – Taker	Pre Re-quote – Maker	Maker has interrupted a quote from "Pre BuySell – Maker"

Terminal Status

Sold – Taker	Bought – Maker	Taker has bought
Bought – Taker	Sold – Maker	Taker has sold

No Traders Available – Taker		RFQ to deal code where nc traders are logged in
Taker Cancelled		Taker has cancelled from "Pre Submit – Taker"
Taker Cancelled Pre Pickup – Taker	Taker Cancelled Pre Pickup – Maker	Taker has cancelled from "Pre Pickup – Taker"
Taker Cancelled Pre Quote – Taker	Taker Cancelled Pre Quote – Maker	Taker has cancelled from "Pre Quote – Taker"
Maker Cancelled Pre Pickup – Taker	Maker Cancelled Pre Pickup – Maker	Maker cancelled from "Pre Pickup – Maker"
Maker Cancelled Pre Quote – Taker	Maker Cancelled Pre Quote – Maker	Maker cancelled from "Pre Quote – Maker"
Taker Cancelled Pre BuySell – Taker	Taker Cancelled Pre BuySell – Maker	Taker cancelled from "Pre BuySell – Taker"?

The Deal Strings and Status Strings associated with some of the above are as follows: It should be appreciated that the deal string is the conversational text which is substituted by the system for the actual conversation entered by the trader or the substituted when the trader enters deal information either using the button bar on the deal stack or equivalent keyboard menus.

Status	Status String	Deal String
Pre submit - Taker	Submitting I request	~AMT~~CCYPAIR~
Pre pickup - Taker	Contacting I request	~AMT~~CCYPAIR~
Pre Pickup - Maker Pickup?	Can I quote	~AMT~~CCYPAIR~?
Pre Pickup - Taker	Contacting I request	~AMT~~CCYPAIR~

Pre Pick-up	Pickup?	Can I quote ~AMT~~CCYPAIR~? to Deal Code Maker
Pre Quote - Taker	Accepted	Cpty quoting my ~AMT~~CCYPAIR~
Pre Quote – Maker	Quote?	Can I quote ~AMT~~CCYPAIR~?
Pre BuySell - Taker	Buy/Sell?	Cpty quoted ~BIDOFR~ for ~AMT~~CCY PAIR~
Pre BuySell - Maker	Waiting Accept	I quoted ~BIDOFR~ for ~AMT~ ~CCY PAIR~
Pre Requote - Taker	Re-quoting	I request ~AMT ~CCYPAIR~
Pre Requote - Maker	Re-quote?	Can I quote ~AMT~~CCYPAIR~?
Sold - Taker	I sell	I sell at ~AMT~ ~CCYPAIR~@~BID~
Bought - Maker	I buy	I sell at ~AMT~ ~CCYPAIR~@~OFR~
Bought - Taker	I buy	I buy at ~AMT~ ~CCYPAIR~@~BID~
Sold - Maker	I sell	I buy at ~AMT~ ~CCYPAIR~@~OFR~

The following is an example of the deal statuses where the instrument is a Forward deal:

Taker	Maker	Description
Pre Pickup – Taker		RFQ is being transmitted server.
Pre Pickup – Taker	Pre Pickup – Maker	RFQ has reached maker's screen.

Pre Pickup – Taker	Pre Pickup To Deal Code – Maker	RFQ sent to a Deal Code has reached a member of th Deal Code's screen.
Pre Quote – Taker	Pre Quote – Maker	Maker has picked up
Pre BuySell – Taker	Pre BuySell – Maker	Maker has submitted quote
Pre Re-quote – Taker	Pre Re-quote – Maker	Maker has interrupted a quote from "Pre BuySell – Maker"
S/B Pre Rate – Taker	B/S Pre Rate – Maker	Taker has Sold/Bought an is waiting for Taker to ente spot rate
B/S Pre Rate – Taker	S/B Pre Rate – Maker	Taker has Bought/Sold or Queried the Spot Rate and waiting for Taker to enter spot rate
S/B Pre Confirm – Taker	B/S Pre Confirm – Maker	Taker has Sold/Bought an Maker has entered spot rat
B/S Pre Confirm – Taker	S/B Pre Confirm – Maker	Taker has Bought/Sold an Maker has entered spot rat
S/B Pre Rate 2 – Taker	B/S Pre Rate 2 – Maker	Taker has Sold/Bought, queried the Spot Rate and waiting for Taker to enter spot rate a second time
B/S Pre Rate 2 – Taker	S/B Pre Rate 2 – Maker	Taker has Bought/Sold, queried the Spot Rate and waiting for Taker to enter spot rate a second time
S/B Pre Confirm 2 – Taker	B/S Pre Confirm 2 – Maker	Taker has Sold/Bought an Maker has entered spot rat a second time

Terminal Statuses

Sold/Bought – Taker	Bought/Sold – Maker	Taker has Sold/Bought an Confirmed spot rate
Bought/Sold – Taker	Sold/Bought – Maker	Taker has Bought/Sold ar Confirmed spot rate
No Traders Available – Taker		RFQ to deal code where n traders are logged in
Taker Cancelled Pre Submit – Taker	Taker Cancelled Pre Submit – Maker	Taker has cancelled from "Pre Submit – Taker"
Taker Cancelled Pre Pickup – Taker	Taker Cancelled Pre Pickup – Maker	Taker has cancelled from "Pre Pickup – Taker"
Taker Cancelled Pre Quote – Taker	Taker Cancelled Pre Quote – Maker	Taker has cancelled from "Pre Quote – Taker"

Maker Cancelled Pre Pickup – Taker	Maker Cancelled Pre Pickup – Maker	Maker cancelled from "Pre Pickup – Maker"
Maker Cancelled Pre Quote – Taker	Maker Cancelled Pre Quote – Maker	Maker cancelled from "Pre Quote – Maker"
Taker Cancelled Pre BuySell – Taker	Taker Cancelled Pre BuySell – Maker	Taker cancelled from "Pre BuySell – Taker"
Maker Cancelled S/B Pre Rate 2 – Taker	Maker Cancelled B/S Pre Rate 2 – Maker	Maker cancelled from "S/I Pre Rate 2 – Taker"
Maker Cancelled B/S Pre Rate 2 – Taker	Maker Cancelled S/B Pre Rate 2 – Maker	Maker cancelled from "B/S Pre Rate 2 – Taker"
Taker Cancelled S/B Pre Confirm 2 – Taker	Taker Cancelled B/S Confirm 2 – Maker	Taker cancelled from "S/B Pre Confirm 2 – Taker
Take Cancelled B/S Pre Confirm – B Taker	Taker Cancelled S/B Pre Confirm 2 – Maker	Taker cancelled from "B/S Pre Confirm 2 – Taker"

For every deal in the deal stack there is a corresponding conversation session. In some cases, the RFQ will have originated from a conversation. In others it will have not. In the latter case, a direct quote, a conversation is created but a conversation panel is only opened, that is, the conversation is exposed, if specifically requested by the trader.

Thus, whenever the system performs an action on a deal in response to a Trader action, a message line is included in the conversation session indicating the nature of this action. This message line is in a form where if the Trader had exposed the underlying conversation and typed in the message text it will parse and produce the same action on the deal. The Message will be in a form that reflects the best conversational practice from the point of view of parsing.

The Deal List displays all live RFQs that the trader is involved with. He may see other RFQs if the appropriate options are set. The Trader will preferably have the option of clearing completed deals automatically as they are completed. The Trader will preferably have the option of seeing all RFQs that have been auto-forwarded from his account. Auto-forwarded RFQs shall be cleared from the Deal List by the Clear function.

As mentioned above, the Deal List is wholly independent of the instrument being traded. Thus, the Deal List only displays five columns: Status,

Time, Trader/Bank, Instrument, and Deal. The Deal column contains an instrument/status specific string that is generated by the system to describe the deal.

To balance the independence of the deal list 132, the Deal Detail Panel 134 at the bottom of the Deal List has an instrument specific format and reflects full details of the deal that is currently selected in the list.

When a new Deal is added to the Deal List it is inserted at the bottom of the list regardless of the currently selected sort order (a re-sort is used to position the deal correctly in the sort order). When a deal is added to the Deal List, as a result of the trader's actions (RFQ or Chat), the item last added to the table becomes the selected item. The list is scrolled so that the selected item is visible to the trader.

If the new deal is initiated by a Counterparty the selected deal does not change. If focus is in the Deal List, the currently selected item does not change when a new deal is added to the list. If a new deal is added to the Deal Stack such that the Deal Stack would have to be scrolled to view the deal, then the scrollbar's background flashes, for example red, until the deal is made visible by scrolling.

The Deal Detail panel may contain buttons and other controls that relate to instrument specific functionality which is not available through the standard Deal Stack buttons. When a deal is in a modifiable state the modification is done via edit controls in the Deal Detail panel. These potentially modifiable fields shall have a different colour, for example, cyan, background to the rest of the deal Detail panel. The deal detail panel itself may be a different colour, for example yellow, than the deal list. When the fields are editable they may be distinguished, for example by a white background with a black border.

The Format of the Deal Detail panel is specific to the instrument of the deal. Every implementation of the panel has certain common fields and controls that are always in the same place: Status, Time, Trader/Bank, Instrument & Error/Warning Combo Box. Figure 5,6,8 and 9 illustrate the Deal Detail panel for F/X Spot in various stages of a deal and figure 7 illustrates the Deal Detail panel for F/X forwards at a certain stage of the deal process.

Thus, the Deal Detail panel 134 includes all the information in the Deal list 132 except that instead of the deal list 132 it contains the information which, when entered and then parsed, will result in that deal list 132. Thus, for F/X Spot (Figure 5), the Deal Detail panel includes Amount, Currency Pair, Value Date, Bid and Offer prices and Dealt. In figure 5, the deal detail panel is shown for the first deal in the stack. This is a deal which has only just commenced and where the RFQ has been issued. As there are not yet any bid or offer prices, the only fields that are populated are the amount, the currency pair and the value date. When parsed this results in 'I request 2,5 Mil USD.cad' as shown in the top of deal list 132.

In figure 6, the deal highlighted is the third in the list and, the status of the deal is pre quote B maker, indicating that the maker has picked up the takers quote and is quoting bid and offer prices for 3,200 million Japanese Yen. As the amount and the prices can both be edited, they appear in the Deal Detail panel as black text on a white background.

Figure 7 shows the Deal Detail panel for a Forward deal. Here, the panel lists both near and far amounts, the currency, the nature of both the near and far deals, their value dates, the left and right hand sides, spot (Figure 5) amounts, all in amounts and deal amounts. In the example shown, the panel relates to the fourth deal in the list which is a completed deal. Thus, all the fields in the deal detail panel are populated and none is modifiable. In order that traders can be notified of unallowable entries or mistakes, there is an Error/Warning combo box in the lower left side of the detail panel. This combo box preferably has an entry in its drop down list for every error or warning condition associated with

the deal. When an error or warning is selected in the combo box, the field to which the error or warning pertains will be highlighted in a very obvious manner, for example with a red (error) or orange background (warning). Errors and warnings are listed in the order of their priority. This combo box has an associated label to its right which indicates the number of errors or warnings that the combo box contains. When an alarm or warning condition is changed in the list, the highest priority item is the selected item.

Figure 8 shows an example of the error box. Here, the highlighted deal is the third in the deal list. This requires both an amount and bid and offer prices. The trader has not entered bid and offer prices and the error box shows that a bid or offer price is required. In addition, the Quote? Status string is highlighted in red and the bid and offer fields which would normally be shown white.

The presence of an error in the combo box shall disable keys and menu items, which allow the deal to proceed forwards, until the error condition is corrected.

Figure 9 shows the deal detail panel for a deal that is waiting acceptance. Here, the maker has submitted a quote and the deal is now waiting for an acceptance or refusal from the taker. The amount, bid and offer details are highlighted to indicate that they can be modified.

The Status, Time, Trader/Bank, and Instrument column entries are positioned on the Deal Detail panel exactly beneath their respective columns in the Deal List. If the columns are resized, their relative positions will also change. The Error/Warning combo box and its associated count label will preferably automatically have its width set to that of the Status, Time, Trader/Bank and Instrument columns combined. The instrument specific fields beneath the Deal column will resize and position themselves proportionally to the width of the Deal column.

The instrument specific fields will now be described in more detail for the two example instruments. It is to be understood that the invention is applicable to any instruments and the fields will vary from instrument to instrument.

The amount field is initially read only and displays the amount of the RFQ in millions. When the deal reaches the pre quote-maker stage (figure 6), the field becomes editable.

The 'on' currency field is to the right of the amount field and is the currency in which the RFQ is expressed. If it is not the base currency it is displayed, if it is, then it is not displayed. It is not editable until the pre quote B maker stage at which point it becomes editable

The currency pair field simply shows the currency pair being traded.

The value date indicates the value date for the deal and cannot be change by the parties. It is a regular date for the instrument unless indicated otherwise, for example by an asterisk.

The bid and quote fields display bids and quotes where these exist. They are read only except in the pre quote B maker and Pre re-quote maker stages of the deal when they can be edited, as described in relation to figure 6. If a big figure, that is the most significant digits of the price is available from the market feed into the trading system, that figure is used. If an arbitrage situation is present the market feed rate, the big figure from the system best offer is used. This can be seen in the system rates panel which the client may choose to display.

The final field is the dealt price field which shows the price at which the deal was done. As can be seen from figure 10, this reflects the side (buy or sell) on which the deal was done. In figure 10, the dealt price is the bid price.

The forwards specific fields shown in the deal detail panel are as follows;

Near and Far Amounts. These function in the same manner as the Amount field in the Spot example.

On Currency. This functions in the same manner as the Amount field in the Spot example.

Currency Pair. This functions in the same manner as the Amount field in the Spot example.

Near and Far Periods. If these periods conform to standard periods, for example one month, they will be shown as such. If they do not, they will be shown as broken.

Near and Far Dates. This shows the near and far value dates.

Left and Right Hand Side Prices. Where a LHS or a RHS exists it will be displayed in this field. It is a read only field except then the deal status is in pre quote B maker or pre requote B maker status. When in edit mode this field is pre-populated with the market rate, if available for the bid. If the LHS or the RHS is left blank by the trader, then a one sided price without a bid or offer, respectively, is quoted

Premium and Discount. If the LHS is less than the RHS, the system assumes that the base currency is at a premium to the local currency. If the trader does not enter minuses and the RHS is less than the LHS, the system assumes that the base currency is at a discount to the local currency. Where a discount is detected, the system inserts A-A signs before each value and displays the bid and offer with them. A trader can enter negative amounts for a discount.

Spot Rate. Where a spot rate exists, the Spot Rate Bid field displays it. It is a read only field except when the deal is in I B/S-Rate or I S/B-Rate (I sell/buy or buy/sell at a given rate) status. In edit mode, the field is pre-populated with a middle rate between the bid and offer market rates.

Spot Button. As can be seen from figure 11, the deal detail panel includes a Spot button on which the client can click to display a spot rate query dialog window. The spot button is only visible to the trader when the deal is in I B/S B Confirm or I S/B - Confirm stages. The spot rate query dialog window includes an edit box, allowing the trader to enter text of up to 30 characters having been pre-populated with the text 'Check Rate'. This enables the trader to check the spot rate before committing to a deal. As can be seen from figure 11, the dialog box includes send and cancel buttons. The send button closes the

box, transmits the message and changes the deal status to I S/B awaiting rate or I B/S awaiting rate.

When a maker deal receives a Spot Rate Query message against it the message appears as a warning in the error/warning combo box. This is illustrated in figure 12.

All In Rate. This field is read only and, when the maker has submitted a spot rate, reflects the aggregate of the dealt rate and the spot rate. For Overnight or Tomorrow-Next periods, the sign of the forward bid or offer is reversed to calculate the all in rate.

Dealt Rate. This is the final field in the deal detail panel and is a read only field. When the taker has Buy/Sell or Sell/Buy, the field reflects the price from the side of the market dealt on.

Outrights. The fields for the deal detail panel when the instruments is an outright are not shown as they are the same as for a spot deal referred to above.

The deal column displays different status dependent strings for each instrument. Some of these, for spot, were discussed earlier. The strings are not hard coded into the system but are configurable centrally by the system administrator. The traders preferably do not have control over the strings. As seen before, the status definitions comprise tokens, delimited by tildes (~) representing the underlying values for the deal.

The tokens for spot and outrights are as follows:

Token	Value	Format
~TIME~	Deal Time	"hh:mm:ss"
~TRADER~	Trader	As Deal Stack
~BANK~	Cpty bank	
~INST~	Instrument	As per deal stack

Token	Value	Format
~AMT~	Amount	"9,999.9" + " " + *ONCCY* (if not base ccy) + " mil"
~CCYPAIR~	Ccy pair	*BASE.local* (On currency shall be in upper case.)
~VALDAT~	Value Date	"dd mm yy"
~BID~	Bid	As per the Ccy pair specific format
~OFR~	Offer	As per the Ccy pair specific format
~BIDOFR~	Bid and Offer	If Bid & Offer exist: *Bid-Offer*If Bid only: *Bid* If Offer only: *Offer* (Bid & Offer As per the Ccy pair specific format)
~DEALT~	Dealt Price	As per the Ccy pair specific format

The tokens for forwards deals are as follows:

Token	Value	Format
~TIME~	Deal Time	"hh:mm:ss"
~TRADER~	Trader	As Deal Stack
~BANK~	Cpty bank	
~INST~	Instrumen t	As per deal stack
~AMT~	Amount	"9,999.9" + " " + *ONCCY* (if not base ccy) + " mil"
~HEDGE~	Spot Hedge	"9,999.9" + " " + *ONCCY* (if not base ccy) + " mil"

Token	Value	Format
~CCYPAIR~	Ccy pair	*BASE.local* (On currency shall be in upper case.)
~NEAR~	Near Period or Date	As per deal detail panel
~FAR~	Far Period or Date	As per deal detail panel
~VALDAT~	Value Date	"dd mm yy"
~BID~	LHS Points	As per the Ccy pair specific format
~OFR~	RHS Points	As per the Ccy pair specific format
~BIDOFR~	LHS and RHS Points	If LHS & RHS exist: *LHS-RHS* If LHS only: *LHS* If RHS only: *RHS* (LHS & RHS As per the Ccy pair specific format)
~SPOT~	Spot Rate	As per the Ccy pair specific format
~ALLIN~	All In rate	As per the Ccy pair specific format
~DEALT~	Dealt points	As per the Ccy pair specific format

The third part of the deal stack 130 is the button bar 136 which is beneath the deal list 132 and the deal detail panel 134. The button bar gives the trader various options for progressing or cancelling a deal. The button bar is specific to each deal. That is, the button bar displayed will depend on the deal which is selected in the deal stack. Some options will not be available to a trader at certain stages of the deal as will be explained.

Referring back to figures 5 to 8, it will be seen that the button bar differs from figure to figure depending on the status of the deal highlighted in the deal list. In some cases, buttons are not displayed in bold, indicating that they are not available. In some cases, buttons are substituted. As examples of the latter, the pickup button in figure 5 is replaced by a quote button in figure 6. The cancel button of figure 5 is replaced by the Nothing button in figure 6.

The button bar provides the trader with an alternative, but equally valid method of trading to conversational exchanges with counterparties using the conversation panels. The system operates by converting deal instructions entered via the buttons into parsed text in the same manner as it parses conversational text to produce parsed text for the deal list deal field.

The buttons available to traders are as follows:

Pickup (e.g. fig. 5). This enables a trader to 'pickup' an RFQ entered into the system by a taker. As a result the pickup button is only available to the maker and then only when the deal is in the Pre Pickup B Maker status. By pressing pickup the maker indicates that he is interested in quoting on the RFQ. The RFQ may be sent by the taker to one or a number of traders. If it has been sent a deal code (that is a trading floor or floors), on receipt of a pick up, the RFQ will be removed from the deal lists of all other recipients.

Quote (e.g. fig 6). This enables a trader to enter a quote and so is only enabled on the maker side when a deal is in the pre quote B maker status. The action of the quote will vary from instrument. For a spot or outright deal, the system transmits to the taker the makers bid and/or offer together with an amount. For a forward deal the system transmits to the taker the maker's LHS points and/or RHS points together with near and far amounts.

The first button in the button bar combines all default actions. For the spot example, the button will revert to pickup but be grayed out for deal statuses other than those mentioned above. For forwards, more options are available. When the deal is in the status S/B or B/S Pre Rate - Maker or S/B or B/S Pre Rate 2 - Taker, the button will be displayed as a Rate Button (not shown)

enabling the maker to transmit to the system the makers spot rate. When the forward deal is in the status S/B or B/S Pre Confirm - Taker or S/B or B/S Preconfirm 2 - Taker, the button is displayed as a spot button which allows the Taker to accept the makers proposed spot rate.

Chat. This button, which is only available when a single deal is selected causes the conversational panel opened for the deal to be displayed in the bottom left container. Even if the deal has been conducted in a direct not conversational form, the system will show a deparsed version of conversation that would have led to that deal state. This is possible as each deal has a conversation with it regardless of how the deal is being conducted, whether by conversation or direct entry using the button bars. The trader can switch to conversation at any time to continue the deal. The system will parse that conversation and will not distinguish between direct and indirect deal entry methods. In this respect the system is transparent.

Hold. This button is only enabled when a selected deal is in Pre Quote - Maker status. It causes the selected deal to be put back into Pre Pickup - Taker and Pre Pickup - Maker statuses and, if the original RFQ was sent to a deal code, causes the RFQ again to be displayed to all those parties.

Transfer. This button is only enabled when selected deals are in Pre Quote Maker Status. It enables a trader to transfer the deal to another trader within the limits of a preset authority. Pressing the button will cause a dialog box to be displayed into which the trader can enter the code of the trader to which the deal is to be transferred. A message to this effect is displayed on the originator's deal stack so he knows he is now dealing with a different counterparty.

Sell. This button is only enabled for instruments such as Spot or Outrights. It provides a means for a taker to Sell at the Makers bid price and so is only enabled in the Pre BuySell status when there is a bid from the maker.

RFQ. This button enables a Maker to put out a request for a quote to the market. When this button is pressed, the maker has to supply the amount

and the currency pair. On receipt of the RFQ by the system, a new conversation is associated with the deal.

The RFQ button converts to the caption FIX when the RFQ has been initiated by conversational parsing on the Taker side and is awaiting confirmation for accuracy by the taker

Callout. This button enables a trader to initiate a callout.

Buy. This button is only enabled when a selected deal for an instrument such as a Spot or an Outright is in the Pre Buy/Sell - Taker status where there is an offer from the maker. By hitting the button, the taker indicates to the system that he wishes to buy at the maker's offer price.

Cancel. This is a multifunction button whose caption will depend on the deal status and the instrument being traded in the selected deal. It is used for all negative functions. The functions will vary from instrument to instrument but for Spot are as follows:

Caption/Action	Taker Status	Maker Status
Cancel	Pre Submit – Taker Pre Pickup – Taker Pre Quote – Taker Pre Re-quote – Taker	
Nothing	Pre BuySell – Taker	Pre Pickup – Maker Pre Pickup To Deal Code - Maker Pre Quote – Maker Pre Re-quote – Make
Interrupt		Pre BuySell – Maker
Clear	Any Deal in Terminal Status	Any Deal in terminal Statu
Clear (grayed)	If none of the above apply	If none of the above apply

The negative actions for forwards are as follows:

Caption/Action	Taker Status	Maker Status
Cancel	Pre Submit – Taker Pre Pickup – Taker Pre Quote – Taker	

	Pre Re-quote – Taker	
Nothing	Pre BuySell 2 – Taker	Pre Pickup – Maker
	S/B Pre Confirm 2 – Taker B/S Pre Confirm 2 – Taker S/B Pre Rate 2 – Taker B/S Pre Rate 2 – Taker	Pre Pickup To Deal Code – Maker Pre Quote – Maker Pre Re-quote – Maker B/S Pre Rate 2 – Maker S/B Pre Rate 2 – Maker
Interrupt		Pre BuySell – Maker
Clear	Any Deal in terminal Status	Any Deal in terminal Status
Clear (grayed)	If none of the above apply	If none of the above apply

Of the various actions mentioned above, the cancel action cancels the existing deal stage, reverting it to a preceding deal stage. The Nothing action indicates that the taker is not interested in a proposed deal. The interrupt action removes the deal from the deal stack and is only enabled when a deal reaches a terminal status, that is it is a completed deal.

Clear All. This button clears all eligible deals from the deal stack.

Off All. This button withdraws all deals that are in an appropriate form from the market.

The foregoing section has described the trading actions that are available to a trader from the button bar. It is desirable that the trader can perform all available functions without using a pointing device such as a mouse. Accordingly, the system provides a set up pop up menus which provide the same functionality as the button bar but which can all be invoked from the keyboard. Each function can be invoked by the same keyboard character in each menu. Examples of the characters that can be assigned to functions are:

Mnemonic	Action
A	Clear All
B	Add Trader to Contact Book

Mnemonic	Action
C	Chat
F	Fix
H	Hold
L	Add Trader to Callout List
M	Contact Management
O	Off All
P	Pickup
Q	Quote
R	RFQ
S	Sell
T	Transfer
U	Callout
X	Cancel, Nothing, Interrupt & Clear
Y	Spot Rate Query
Z	Sort

An example of a possible menu for a deal status is as follows:

Status	Menu
"Pre Pickup - Taker". (No Default)	c. Chat F4 f. Fix t. Transfer x. Cancel Esc a. Clear All F11 (Only if deals to clear)

Status	Menu
	o. Off All F12 m. Contact Management (incoming only)
	r. RFQ F6 u. Callout F7 z. Sort

PARSING

The description above has been concerned with the traders interface with the dealing system. It has been mentioned that deals can be entered into the system directly through the deal stack button bar or equivalent keyboard strokes, or that deals can be entered conversationally, which conversation is parsed by the system to extract the deal related information. The next section examines the parsing mechanism.

Parsing within trading systems is, itself, known. Parsing is used in the Reuters Dealing 2000/1 system referred to in the introduction. However, in that system, all deal transactions are through conversation. The trader does not have the option of using direct deal entry as described above. As a result there is no requirements for the system to be able to deparse deal information. Because of this, and for various other reasons, the parsing requirements of the present system differ markedly from those of the prior art. The following description will consider the foreign exchange markets and, in particular, the three instruments discussed above: FX Spot, FX Outrights and FX Futures. First, the manner in which the parser operates will be described by discussing how a conversational deal is executed with reference to the flow diagrams of figures 13, 14a, 14b and the various shots of the user interface of figures 15 to 22. It should first be noted that figures 15 to 22 show a different embodiment of the User Interface from that previously described.

At all stages in the exchange of chat, the parser monitors the conversations looking for an RFQ (Request for a Quote). The presence of an

RFQ alerts the parser that a new deal is being initiated. Thus if two traders are exchanging pleasantries unrelated to a deal, the parser will monitor the conversation for an RFQ. The user's parser is responsible for parsing the user's conversation but plays no part in the parsing of conversation received from the other party to a conversation.

In the following example, a new conversation has been initiated by a client referred to as Client 1 and shown in figure 15 as kdunay@EBSN. This user has typed a message into his Chat panel and hit the return key. This causes the User Interface (Figure 2) to send the line of chat to the parser regardless of content. The parser parses the conversation looking for a change of status and for other deal related information. In the present case, the parser has detected an RFQ in the line of chat. That line, although not shown may have been 'I want 1 Yen'. The parser detects this as an RFQ and then looks for other deal related information which includes the instrument traded, here identified as FX Spot, the currency pair, here US Dollars/Japanese Yen, and the amount, here 1 Million. The Parser returns the parsed conversation to the User Interface in the form of the DealInfo structure referred to earlier and which contains the Deal Status and the deal related information.

Figure 15 shows the situation were the DealInfo structure has been returned to the User Interface. The RFQ has not yet been entered into the system and is displayed as a parsed line 200 in the deal stack 202. The parsed line can either be cancelled by the user, kdunay@EBSN, by hitting the Red Cancel button 204 or edited, for example to change the amount or the currency if the trader has made a mistake, changes his mind or is reacting to a change in the market conditions. Editing is performed by pressing the 'Fix' button 208. Alternatively, the user may re-enter the conversation so that it is reparsed. To indicate to the user that action is required, the Status of the line in the deal stack is preferably shown in a representative colour, for example green. The button 206 on the button bar that the user has to press for the RFQ to be sent is also shown in Green. The parsed conversation is shown in the deal stack in a

representative colour, for example red, to show that it is system generated text. At this point, a system message 'Submit?' is also displayed, in red, in the conversation panel.

It will be seen that the deal stack of figure 15 differs from that of the earlier example in that it includes a strip 210 above the button bar which displays to the user, significant information about a highlighted deal. Thus the strip includes the deal status 201, the trader 203, the instrument (spot) 205, the currency pair 207, the amount with the base currency indicated and the buy and sell rates. These latter rates are displayed in boxes 212, 214 which are unfilled in figure 15 as no rate has yet been quoted in this deal.

In the example, the line of conversation parsed resulted in a detected deal status. The line of text could simply have said something like 'Hi, how are you'. The parser would not have detected any deal related information but it would still send a response to the User Interface to indicate that a line of conversation had been parsed, but no dealing information had been found.

When the user is satisfied with the parsed line as it appears in the deal stack, he presses the 'Proceed' button 206. This causes the parsed conversation to be sent to the client's communications module 22 (Fig. 2) and then to the deal server 28.

At this point there are a number of features of the parsing which should be emphasized. First, the parser parses the conversation line by line and parsing does not take place until the user has finished typing and hit the send button 216. This contrasts with the system used in the Reuters 2000/1 system referred to earlier which parses conversations line by line as they are being typed by the user. The system described here is advantageous in that the user can change what he has typed, for example to react to changes in the market, or simply to correct errors, without disclosing his hand to the counterparty trader. Giving the counterparty trader knowledge about a view of the market is highly undesirable as it may affect the bid or offer he makes.

Second, the parser plays no part in the deal making process and retains no

knowledge of the deal. The parser merely looks at the line of conversation for information relating to the deal status. It returns the DealInfo structure to the User Interface and does not retain any knowledge of the deal. This makes the parser very simple.

Third, the parsing is based on a deal status structure with the emphasis on detecting status movements. The deal status are very simple: None, RFQ, Quote, Buy/Sell although these are elaborated as will be discussed. In each of the statuses, there are a number of deal related terms that the parser looks out for. This makes parsing very simple and accurate. Firstly because there are not many terms to look for and secondly because there is less chance of confusion arising resulting in misparsing. This could occur, for example, if a line of conversation referred to a historical deal between the parties. By separating the deal process into a number of statuses each of which have a limited number or parseable terms, it is relatively easy for the parser to avoid such misparsings. The details of the statuses and deal related terms for each status will be discussed in detail later.

In the example given, the conversation parsed by the parser contained both a change in deal status and all the information that is required to accompany that detected status (instrument, currency pair, etc.). For each of the possible deal statuses there are only a number of permitted transitions and for each deal status there is a limited number of expressions that the parser will recognize as indicating a change in status. For example, if the new conversation includes a request for a quote, the parser will look for information which indicates a quote. It will parse the entire line and, for a given status will look to fill a predetermined number of information fields. These will vary depending on the status. As an example, when the parser is expecting a change in status from RFQ to Quote, it will look to see whether there is an indication of a bid quote and/or an offer quote, or a refusal to quote. If there is a bid/offer quote it also looks for an indication of the currency, in the case of an FX spot trade. The states of the deals and the fields required will vary depending on the instrument

being traded.

Once the conversation input from the user has been parsed, the parser returns to the user interface one of three possibilities:

a) there is nothing in the conversation that is parseable. This will be the case is the conversation does not include any deal related information;

b) an update in the deal structure which includes the new deal status and the fields found;

c) an error message where there is an ambiguity and it cannot resolve the status change. In this case, the error is displayed in the chat stack and the deal is not changed.

Reverting back to the parsed conversation message. From the client's communications module 22 the message is sent to the deal server 28 at which point it is checked to ensure that it conforms with system regulations, banking regulation and business related rules. It may also enable credit checks to be made, for example by linking in the deal details to the user bank's global credit checking mechanisms. If the deal cannot proceed a failure message is displayed at the user terminal but the counterparty is not made aware of that fact. As far as the counterparty is concerned, the RFQ that he put out is simply not answered. This ability to conceal failed deals is advantageous as a user will often not want a counterparty to know that he has tried to deal with him but failed. He will also not want that counterparty to know the details of the attempted deal as it will disclose to him valuable information about his intentions and his reading of the market. This advantage stems from the manner in which the system parses conversations on a line by line basis rather than in real time as they are typed in character by character.

Assuming that the deal server 28 does not reject the RFQ, the parsed message is sent to the destination User Interface via the destination client's communication module. It should be noted that the system is arranged such that the deal server handles all deal related, parsed traffic and the conversation

server handles all conversations carrying unparsed conversation; that is conversations which the parser has not found to contain a change in deal status. This dual server arrangement is convenient but is not essential and could be replaced by a single server or some other server configuration.

Figure 16 shows the user interface after the RFQ has been sent to the counterparty. The status of the deal in the deal stack is shown as 'waiting pick up' meaning that the User Interface has not been notified that that the counterparty has picked up the deal from his incoming conversations panel. In the conversation panel for the deal, the client's conversation is now shown in a representative colour, for example green, to show that the message originated from the client.

Referring now to figure 17, there is shown the user interface of the client to whom the RFQ described in figure 14 has been sent. The client is identified as test@EBSN. The RFQ message has been passed by the deal server and relayed to client test@EBSN. The sending client User Interface has also been notified that the message has been sent. The incoming message will first appear in the client's incoming messages panel. In figure 15, client test@EBSN has doubled clicked that message to open up a new conversation in the active conversation panel. In the figure this is identified as conversation with the name of the counterparty, kdunay@EBSN identified. The system indicates in the conversation panel that client test@EBSN has joined the conversation and displays the parsed message in the deal stack. Note that the message is identified as Quote 1 mil JPY usd/JPY? which is an embellished version of the parsed message displayed in the maker client's deal stack. The original version of the message is shown in the conversation panel. The message is shown in the conversation panel in a representative colour, for example blue, to indicate that it is an incoming message. In the deal stack, the status of the deal is shown as 'pickup' and coloured green indicating that action is required by the client. In this case the client has to respond to the RFQ.

The second client, test@EBSN then types in his response to the RFQ in

the chat line 220 of the conversation panel and hits the send button 222. In the same manner as the RFQ line, this causes the User Interface to send the complete line of text to the parser which again parses the text and sends back the DealInfo structure to the User Interface. The parsed text, if it contains a change of status and the necessary deal related information is sent via the deal server to the counterparty. It should be noted that the parser for client kdunay@EBSN only parses conversation entered by that client and the parser at client test@EBSN only parses conversation entered by that client.

Figure 18 shows the counterparty client test@EBSN when a quote has been entered by the user and parsed by the parser but not confirmed by the user. The status in the deal stack shows Quote? and the conversation panel indicates the quote as parsed by the parser followed by a question mark. The chat line of the conversation panel invites the user to proceed. In figure 18, the status in the deal panel is preferably shown in a representative colour showing a warning, in this case orange. The system displays a message in the conversation panel 'Big figure unavailable'. In this case the message is false and was generated as the rates panel was disabled but serves to illustrate how warnings can be shown.

Figure 19 shows client kdunay@EBSN's user interface when the response is received. Client test@EBSN has submitted a quote in response to the RFQ shown as 123.33/123.45. These figures are the buy/sell spread. This is shown in the conversation panel in e.g., blue as it is an incoming message. Note that the previous entry in the panel is the client's own conversation. This is shown in a representative colour, for example green. The deal stack shows the change in Status to Buy/Sell, highlighting the status in green. This shows that action is required by the client and that the next phase of the deal is either an agreement to buy and sell at the offer price or a denial. It can be seen that the deal information line shows the offer prices, the amount and the currency pair and that the large boxes on the bottom strip 212, 214 now include the buy/sell prices.

Figure 20 shows the first client's interface after that client has replied to

the quote by agreeing to sell at the offer price. The status has changed to I sell and the deal line now reads 'I sell 1 mil JPY usd/JPY @123.33. The last line in the conversation panel shows, in green that the client has sold and is preceded by a system prompt, in red, Sell? This prompt appears when the user types in 'Sell' and the change in status to sell is detected by the parser and returned to the User Interface but before the client has confirmed the sell by hitting the proceed button.

No matter what the status of a deal, the parser always looks for new RFQs and, if one is detected, opens a new conversation. Thus, in the previous example, instead of agreeing to sell, the client kdunay@EBSN could have put in a new request such as 'I want 1 mil gpb' indicating that he wants to buy one million £Sterling against $US. The parser detects this RFQ and opens a new conversation but does not terminate the existing conversation. Then there are now two conversations between the same two parties. The ability to run several conversations between the same two counteparties simultaneously is highly desirable. The system can support a large number of simultaneous conversations between the same two counterparties, for example 10. This should not be confused with the ability to have a number of conversations open with different counterparties at the same time which is known in the art and also possible with the system embodying the invention.

The above discussion illustrates how the system handles a conversation input by the user. In the course of a deal there will be several lines of conversation, with each handled in the manner discussed. As soon as a parser has passed on the deal structure and the fields detected to the user interface, the information is lost from the parser. The parser preferably has no capacity or requirement to retain information regarding the history of the conversation.

Figures 21 and 22 illustrate two further aspects of the parser. In figure 21 it can be seen that there are two separate conversations between test@EBSN and kdunay@EBSN. The two conversations are shown at 224 and 226 in the deal stack and as conversations 1 and 2 in the conversation panel. In figure 21, the

second conversation is active. This is the top line of the deal stack. The system is returning an error message as the quote has been input without an amount. The quote status is indicated in a representative colour, e.g., pink, in the deal stack and an error message is displayed in red above the button bar telling the user the source of the problem. In this case it says 'must have amount'. The error is also reflected in the conversation panel which has a series of error messages 'Amount required' 228 followed by a further, more emphatic, message 'must have amount' 230

Figure 22 gives another example of the warning message. The situation illustrated is a development of the second conversation of figure 21. A quote amount has now been entered but the system is again indicating that the big figure is unavailable and so highlights the status in orange. The second deal line in the deal stack is also showing a warning as the deal has been withdrawn by one of the parties.

Turning back now to figures 13 and 14. Figure 13 shows an overview of the process described. At step 300, the parser looks to see if there is an identification number for a given conversation. If there is not, at step 302 it creates a new deal info structure and, at step 304, sets the status of the deal to Ano deal@. If there is an ID, it looks up the deal status at step 306 from the previous parse. However, this status is not held at the parser but is provided from the user interface. At step 308 the current deal status is set to the next stage in the deal and at step 310 definitions are applied to the message according to the current deal status. These determine which terms in the conversation the parser will acknowledge as being deal related information.

In Figure 14A and 14B, the trader inputs a message to the user interface at step 400. This message is sent by the user interface to the parser where it is received at 410. At 420 the parser attempts to parse the message. If it cannot be parsed, the conversational message is sent to the chat server at 430 and then to

the intended recipient at 440. A message that cannot be parsed is one that has no deal related content.

If the parser can detect deal related information, at step 450 it determines whether or not there is an error. If an error is detected an error message is sent to the trader at 460.

If there is no error, at step 470 the parser determines whether or not parsing is complete. If it is not, the client is asked to complete the information at step 480.

If parsing is completed successfully, at step 490, the deal information file is updated and, at step 500, the parsing results are displayed at the user interface.

The trader must then decide whether or not they want to proceed and send the parsed message to the counterparty (at 510). The confirmation stage is performed by the proceed, edit and cancel buttons on the deal panel described previously. In the simplified diagram of Figure 14B, the edit function is not shown. If the trader does not want to proceed, the deal is cancelled at step 520 without having been shown to the counterparty. If the trader does want to proceed, at 530 the parsed message is sent to the deal server and at 540 the deal server tries to confirm the parsed message against the system business rules. If it cannot confirm the deal at step 550 the trader is informed but the counterparty trader receives no indication that the message was ever sent. If the deal is confirmed then a confirmation message is sent to the trader at 560 and also to the chat server at 570 and onto the recipient at 440.

The manner in which parsing takes place will now be described in more detail.

A general FX terminology module provides an indication of the common terminology used by dealers to deal FX via the Chat panel on the Trader platform.

The system monitors all conversations conducted via the chat panel and interprets text from the conversations into a fixed format within the deal stack,

thus standardizing the deal details and enabling the system to construct a formal deal ticket for each FX deal.

The system can distinguish the important terms within a conversation that relate to the completion of the deal. This includes terms related to requesting a quote, responding with a quote, confirmation of buy or sell, and any notice of special settlement instructions.

The system can distinguish terms within a conversation that could lead to ambiguity as to deal details or whether a deal is in progress at all. For instance, dealers may be discussing a previous trade or providing indicative quotes internally.

The system can ignore terms that are not pertinent to the completion of a deal. That is, friendly formalities such as discussions regarding the weather or particular news stories, will be overlooked by the system, no matter at what point in the deal process, they occur.

Functional Components of the General FX Terminology Requirements are:

Chat Terminology - Common Deal Terms

Chat Terminology - Negative Terms

Chat Terminology - Unrecognized Terms

The interaction between components is:

Chat Terminology - Common Deal Terms provides the list of terms and variables that are directly pertinent to an FX deal being completed and should be parsed by the system.

Chat Terminology - Negative Terms provides the list of negative terms that the system should be aware of that would indicate that preceding/proceeding terms/phrases are not pertinent to a deal in progress.

Chat-Terminology - Unrecognized Terms describes how the system should treat terms/phrases it does not recognize within the chat conversation.

Chat Terminology - Common Deal Terms

The system can recognize all common phrases and terms used within a conversation that are pertinent to the completion of the deal. Specific terms within the conversation provide values for the variables that are necessary for a deal to be concluded. The system should be able to pick up these terms and to deliver the data to the corresponding fields within the deal stack.

Dealers use a variety of different ways/shortcuts to communicate the same thing within a conversation. The system can pick up on market conventions in relation to the key variables required for the deal stack.

As part of a request for quote, the system permits the user to enter a single ISO currency code 'CurrX' or its pseudonym to represent the currency pair USD/CurrX. For example:

CHF = USD/CHF

NZD = NZD/USD

GBP = GBP/USD

Cable = GBP/USD

Peso = USD/MXP

The system permits the user to enter a complete currency pair, i.e. reference to both currencies, in the following formats:

Currency1/currency2

Currency1 Currency2

Currency1Currency2

Currency1-Currency2

The system permits the user to specify an amount with a label to denote magnitude. For example:

10 mio = 10 million

500k = 500 thousand

1bio = 1 Billion

If the user specifies an amount without a label that denotes the magnitude, the system shall interpret the amount as being expressed in millions. For example:

10 = 10 million

CHF in 20 = USD/CHF for 20 million USD

GBP in 500k = GBP/USD for 500,000 GBP

The system permits the user to specify a two-way quote in any of the following formats:

bid quote/offer quote

bid quote-offer quote

bid quote offer quote

bid quote*offer quote

The user may specify a one-way bid quote in any of the following formats:

Bid quote/-

buy at [Bid quote]

Bid at [Bid quote]

The user may specify a one-way offer quote in any of the following formats:

-/Offer quote

sell at [Offer quote]

Offer at [Offer quote]

The user may confirm a deal with the following terms:

ok

done

confirmed

conf

agreed

agree

The system permits the user to cancel a deal using any of the following terms:

Cancel

Canc

Nothing

Nothing

Nthing

Nthng

NT

No Thanks

No thks

If the user cancels the deal in the conversation, the system automatically cancels the appropriate deal entry in the Deal Stack.

Chat Terminology - Negative Terms

The system takes into account that dealers on the system may discuss previously completed deals via the chat panel, but are not attempting to complete a deal. The system will recognize terms that indicate that the current conversation in which the dealers are engaged, does not pertain to a deal.

The system does not attempt to parse any variables from the chat panel if the variables are preceded by the following phrases within the same line of input/sentence, that indicate a past event (substitute any characters for ...) :

..... did ..... [deal variables]

..... dealt .....[deal variables]

..... completed ..... [deal variables]

..... made ..... [deal variables]

..... quoted ..... [deal variables]

..... bought .....[deal variables]

..... sold .....[deal variables]

Some examples of the incidence of the above terms are as follows:

We did 10 mio EUR ystd - *The dealer is referring to a historical deal*

We dealt cable in 10 last week - *The dealer is referring to a historical deal*

I completed the stg deal - *The dealer is referring to a historical deal*

He made me stg at 67/70 B *The dealer is referring to a historical quote*

I have done a deal for Swiss in 20 - *The dealer is referring to a historical deal*

He quoted 67/70 - *The dealer is referring to a historical quote*

If the user has input phrases/terms pertaining to a past event the system continues its monitoring process of the chat panel immediately after the input has been sent to the counterparty. For example:

We did Eur yesterday

I want 20 CHF today - *the dealer first refers to a historical deal, which is ignored by the system based on the rules above. The second sentence is an RFQ for USD/CHF, 20 million USD that will be parsed by the system.*

I did not quote you CHF at 50/57

Its 60/57 - *The dealer first refers to a historical quote (or a mistaken quote in this case) which is ignored by the system based on the rules above. The second sentence is a quote for USD/CHF that will be parsed by the system.*

Chat Terminology - Unrecognised Terms

The chat panel is used for a variety of casual conversations that have no bearing on the dealing process. The system will ignore all terms that do not conform to requirements of the Deal Use Case.

FX SPOT PARSING

The FX Spot module provides the user with the ability to deal the FX Spot instrument type via the Chat panel on the EBS Trader platform.

The Functional Components of the FX Spot Parsing Requirements are the Deal Use Case and the Chat Terminology - Deal Terms. The Deal Use Case describes the process of completing a deal and enables the system to actively 'watch' for particular terms/phrases it is expecting to see within a conversation that are pertinent to an actual deal. Chat Terminology - Deal Terms provides the list of terms and variables that are directly pertinent to a deal being completed and should be parsed by the system.

Deal Use Case

In order to complete an FX spot deal, the following must take place:

An FX Spot request for quote is sent by a taker to his maker(s).

In response, the maker can either: provide a two way quote (bid and offer) in response to the RFQ - this is only if an amount was indicated in the

RFQ; provide a one way quote (bid or offer) in response to the RFQ - this is only if an amount as indicated in the RFQ; provide a quote for a particular amount in response to the RFQ; or indicate that he does not want to supply a quote, so no deal takes place.

The taker receives a quote. In response he can either: indicate he wants to buy and confirm the deal; indicate he wants to sell and confirm the deal; or cancel the deal if the taker does not like the quote.

The deal is now complete.

The system recognizes the stage at which an FX Spot deal is at within the dealing process. The system watches for particular phrases pertinent to the particular stage of the deal process. If no deal is currently in progress within a chat panel, the system monitors the chat panel for indications of a request for quote. In particular, the system watches for the following terms that indicate a request for quote has been initiated within a chat panel conversation:

An indication of the instrument type (FX Spot)

An indication of a currency pair

An indication of an amount

An indication of the currency of the amount

A request for quote includes at least an indication of the currency pair. Some examples are as follows:

hihi CHF pls - *The taker is requesting a quote for USD/CHF*

hi CHF in 10 pls - *The taker is requesting a quote for USD/CHF for 10 million USD*

Hihi SPOT STG in 10 pls - *The taker is requesting a quote for GBP/USD for 10 million GBP*

Hi frd GBP/EUR pls - *the taker is requesting a quote for GBP/EUR*

Welly for 20 pls - *the taker is requesting a quote for NZD/USD for 20 million NZD*

The system parses all variables indicated as part of an RFQ from the conversation to the appropriate field in the Deal stack.

If the system has identified a request for quote, and it has been sent to the maker, the system monitors the chat panel for indications of a response to the request for quote. The system watches for the following terms within the chat panel that indicate a response to the request for quote:

indication of a bid quote

indication of an offer quote

indication of a refusal to quote

an indication of an amount

an indication of the currency of the amount

A response to a request for quote includes an amount if one is not supplied in the RFQ, together with at least one of the following:

a bid quote

an offer quote

OR

a refusal to quote

Some examples of a response to a request for quote:

1.4696/4700 - *The maker provides a two way quote, bid/offer*

4696/4700 - *The maker provides a two way quote bid/offer*

96/00 - *the maker provides a two way quote bid/offer*

56-60 up to 10 - *the maker provides a two way quote, bid/offer, and an indication of amount, 10 million*

I buy at 60 - *the maker provides a one-way quote; the offer quote.*

Nothing - Maker refuses to quote

The system parses all variables indicated by the maker in the response to a request for quote from the conversation to the appropriate fields in the Deal Stack. A refusal to quote is indicated if the maker inputs this intention into the chat panel or cancels the deal through the deal stack. If the maker refuses to quote, the system shall conclude that the deal has been cancelled. If the maker refuses to quote, the system re-starts its monitoring process and looks for a request for quote within the conversation. The system ensures that the following variables have been parsed from the conversation to the deal stack prior to permit the taker to indicate his intention to buy or sell:

The currency pair

The amount

The currency of the amount

A bid and/or an offer

If the above variables have not all been successfully parsed to the deal stack, the system requests that the maker input the missing variables prior to indicating his intention to send. For example, the system could raise an alarm. If the system has identified a response to a request for quote, and the response has been sent to the taker, the system monitors the chat panel for a response to the quote.

The system watches for the following terms within the chat panel that indicate a response to the quote:

an indication to buy at the offer price

an indication to sell at the bid price

an indication of a cancellation of the deal

A response to a quote includes at least one of the following:

an indication to buy at the offer price

an indication to sell at the bid price

an indication of a cancellation of the deal

Some examples of a response to quote are:

Ok, I buy - *the taker is happy with quote and agrees to buy at offer price*

Ok, mine in 10 - *the taker is happy with quote and agrees to buy at offer price for an amount of* 10 *million, the amount "10" is ignored by the system, the whole available amount is bought*

Yours - *the taker is happy with quote and agrees to sell at the bid price*

Ok I sell - *the taker agrees to sell.*

Nothing thks - *the taker does not like the quote and does not wish to deal.*

A cancellation of the deal indicated if the taker inputs his intention to cancel (he does not like the price) or the taker cancels the deal within the deal stack. If the taker cancels the deal, the system shall re-start its monitoring process and look for a request for quote within the conversation. If the system has identified a response to quote the system confirms the deal in the deal stack and re-starts its monitoring process and look for a request for quote within the conversation.

Chat Terminology B Deal Terms

The system can recognize all phrases and terms used within a conversation that are pertinent to the completion of the deal.

Specific terms within the conversation provide values for the variables that are necessary for a deal to be concluded. The system is able to pick up these terms and to deliver the data to the corresponding fields within the deal stack.

Dealers use a variety of different ways/shortcuts to communicate the same thing within a conversation. The system can pick up on market conventions in relation to the key variables required for the deal stack.

As part of a request for quote, the system permits the user to enter the term "spot" to indicate that the deal is a FX Spot deal. For example:

SPOT Swiss please = FX Spot deal for USD/CHF

As part of the request for quote, the system permits the user to specify a currency pair with or without an amount, to indicate that the deal is a FX Spot deal. For example:

Stg pls = FX Spot deal for GBP/USD

EUR pls = FX Spot deal for EUR/USD

Eur in 10 pls = FX Spot deal for EUR/USD, amount is 10 million EUR

CHF for 20 = FX Spot deal for USD/CHF, amount is 20 million USD

The system permits the user to specify an amount of currency to buy or sell. For example:

10 mio GBP against USD pls = USD/GBP, 10 million GBP

Eur pls, 10 million US = EUR/USD, 10 million USD

If the user does not specifically indicate the currency of the amount, the system shall interpret the amount to represent the amount in the base currency of the currency pair. For example:

eur in 10 pls = EUR/USD 10 million EUR

chf for 10 = USD/CHF, 10 million USD

50 mio Welly pls = NZD/USD, 50 million NZD

The system permits the user to enter the big figure only once as part of the first part of the quote, be it bid or offer. For example:

1.4567/70 => bid quote = 1.4567, offer quote = 1.4570

121.43/53 => bid quote = 121.43, offer quote = 121.43

The system permits the user to enter a quote without the big figure, i.e. only the pips of the quote. For example:

67/70 => GBP/USD quote, bid quote = 1.4567, offer quote = 1.4570

43/53 => GBP/JPY quote, bid quote = 121.43, offer quote = 121.53

The system warns the user if there is no big figure available. The system permits the user to indicate his preference to buy the stated amount of currency by using the following terms:

Buy

Mine

M

B

Take

T

At [Offer Price]

[Offer Price]

The system permits the user to indicate his preference to sell the stated amount of currency by using the following terms:

sell

Yours

Y

S

give

G

At [Bid Price]

[Bid Price]

The system permits the taker to indicate his intention to buy or sell. For example:

I sell CHF = User sells previously indicated amount of CHF

Y = User sells previously indicated amount in previously indicated currency

FX OUTRIGHTS

The parsing requirements for FX outrights are similar to those described for FX Spot.

The following is a description of the process followed to complete an FX Outright deal

An FX Outright request for quote is sent by a taker to his maker(s).

In response, the maker can either: provide a two way quote (bid and offer) in response to the RFQ - this is only if an amount was indicated in the RFQ; provide a one way quote (bid or offer) in response to the RFQ - this is only if an amount was indicated in the RFQ; provide a quote for a particular amount in response to the RFQ; or indicate that he does not want to supply a quote, no deal takes place.

The taker receives a quote. In response he can either: indicate he wants to buy and confirms the deal; indicate he wants to sell and confirms the deal; cancel the deal B the taker does not like the quote.

The deal is now complete.

The system recognizes the stage at which a deal is at within the dealing process and watches for particular phrases pertinent to the particular stage of the deal process. If no deal is currently in progress within a chat panel, the system monitors the chat panel for indications of a request for quote. The following terms that indicate a request for quote has been initiated within a chat panel conversation are watched for:

An indication of the instrument type (FX Outright)

An indication of a currency pair

An indication of an amount

An indication of the currency of the amount

An indication of a duration/forward date

A request for quote should include at least the following:

An indication of the currency pair

An indication of the instrument type

An indication of a duration/forward date

Some examples of a request for quote:

hihi Outrite 3m CHF pls - *The taker is requesting a quote for an FX Outright for USD/CHF maturing in 3 months*

hi Out 10 mio CHF 6m pls - *The taker is requesting a quote for an FX Outright in USD/CHF for 10 million USD maturing in 6 months*

Hihi o/r cable in 10 maturity 5 Jan 01 pls - *The taker is requesting a quote for an FX Outright in GBP/USD for 10 million GBP maturing on the 5th of January 2001*

Hi frd Outrite GBP/EUR 1yr pls - *the taker is requesting a quote for an FX Outright in GBP/EUR maturing in 1 years time*

The system parses all variables indicated as part of an RFQ from the conversation to the appropriate field in the Deal stack. If the system has identified a request for quote, and the RFQ has been sent to the maker, it monitors the chat panel for indications of a response to the request for quote.

The following terms within the chat panel that indicate a response to the request for quote are watched for:

indication of a bid quote

indication of an offer quote

indication of a refusal to quote

an indication of an amount

A response to a request for quote includes an amount (if not supplied in the RFQ) together with at least one of the following:

a bid quote

an offer quote

OR

a refusal to quote

Some examples of a response to a request for quote:

1.4301/08 - *The maker provides a two way quote, bid/offer*

4696/4700 - *The maker provides a two way quote bid/offer*

0.87563-62 - *the maker provides a two way quote bid/offer*

[106.70 90 Spot 107.00 03 - *the maker provides a two way quote, bid/offer, and the spot split, 107.00/107.03*]

Nothing - Maker refuses to quote

All variables indicated by the maker in the response to a request for quote are parsed, from the conversation to the appropriate fields in the Deal Stack. A refusal to quote is indicated if the maker inputs this intention into the chat panel or the maker cancels the deal in the deal stack.

If the maker refuses to quote, the system concludes that the deal has been cancelled, and the monitoring process is restarted, looking for a request for quote within the conversation.

The system ensures that the following variables have been parsed from the conversation to the deal stack prior to permit the taker to indicate his intention to buy or sell:

An indication of a duration/forward date

The currency pair

The amount

The currency of the amount

A bid and/or an offer

If the above variables have not all been successfully parsed to the deal stack, the system requests that the maker input the missing variables prior to indicating his intention to send. If the system has identified a response to a request for quote, and the response has been sent to the taker, it monitors the chat panel for a response to the quote. The following terms are watched for within the chat panel that indicate a response to the quote:

an indication to buy

an indication to sell

an indication of a cancellation of the deal

A response to a quote includes at least one of the following:

an indication to buy

an indication to sell

an indication of a cancellation of the deal

Some examples of a response to quote:

Ok, I buy - *the taker is happy with quote and agrees to buy at offer price*

Nothing thks. - *the taker does not like the quote and does not wish to deal*

A cancellation of the deal is indicated if the taker inputs his intention to cancel (he does not like the price) or the taker cancels the deal in the deal stack. If the taker cancels the deal, the system re-starts its monitoring process and looks for a request for quote within the conversation. If the system has identified a response to quote the system confirms the deal in the deal stack and re-starts its monitoring process looking for a request for quote within the conversation.

As part of a request for quote, the system requires the user to enter one of the following terms to indicate that the deal is a FX Outright deal:

Outright

Outrite

Out

O/r

As part of the request for quote, the system requires the user to specify a currency pair. For example:

Outright 6m Stg pls = FX Outright 6 months for GBP/USD

Out 3m EUR pls = FX Outright, 3 months for EUR/USD

O/r 23/01 Eur in 10 pls = FX Outright for EUR/USD, amount is 10 million EUR, maturity is 23/01/01

Outrite 9mth CHF for 20 = FX Outright, 9 months for USD/CHF, amount is 20 million USD

The user is permitted to specify an amount of currency to buy or sell, for example:

Outrite 10 mio GBP against USD 6m pls = GBP/USD, 10 million GBP, 6 months duration

Outrite Eur pls, 10 million US 6m = EUR/USD, 10 million USD, 6 months duration

If the user does not specifically indicate the currency of the amount, the system interprets the amount to represent the amount in the base currency of the currency pair, for example:

Out eur 10mio 3m pls = EUR/USD 10 million EUR, 3 months

Out chf for 10 months, 20 mio = USD/CHF, 10 months, 20 million USD

50 mio Welly out pls, 3m = NZD/USD, 50 million NZD, 3 months

The system requires the user to express a duration for the deal as part of the request for quote.

The system shall permit the user to express a maturity date (the terms "value date" or "settlement date" can be used) in lieu of a duration as part of the request for quote. The maker may enter the forward bid rate directly to represent the bid quote for an FX Outright. The maker may enter the forward offer rate directly to represent the offer quote for an FX Outright. The user may

enter the big figure only once as part of the first part of the quote, be it bid or offer. For example:

1.4567/70 => bid quote = 1.4567, offer quote = 1.4570

121.43/53 => bid quote = 121.43, offer quote = 121.43

The user may enter a quote without the big figure, i.e. only the pips of the quote. For example:

67/70 => GBP/USD quote, bid quote = 1.4567, offer quote = 1.4570

43/53 => GBP/JPY quote, bid quote = 121.43, offer quote = 121.53

The user is warned by the system if there is no big figure available. The user may indicate his preference to buy the stated amount of currency at the forward date by using the following terms:

Buy

Mine

M

B

Take

T

At [Offer Price]

[Offer Price]

The user can indicate his preference to sell the stated amount of currency at the forward date by using the following terms:

Sell

Yours

Y

S

Give

G

At [Bid Price]

[Bid Price]

The system permits the taker to indicate his intention to buy or sell. For example:

I sell CHF = User sells previously indicated amount of CHF

Y = User sells previously indicated amount in previously indicated currency.

FX FORWARDS PARSING

Deal Use Case

The following is a description of the process followed to complete an FX Forward deal:

An FX Forward request for quote is sent by a taker to his maker(s)

In response, the maker can either: provide a two way quote in response to the RFQ - this is only if an amount was indicated in the RFQ; provide a one way quote in response to the RFQ - this is only if an amount was indicated in the RFQ; provide a quote for a particular amount in response to the RFQ; or indicate that he does not want to supply a quote, in which case no deal takes place.

The taker (taker of the deal) receives a quote. In response he can either: indicate he wants to sell at near date/buy at far date and confirms the deal; indicate he wants to buy at near date/sell at far date and confirms the deal; or cancel the deal B the taker does not like the quote.

The maker (maker of the deal) receives notification of the taker's intent. In response he must supply a Spot Rate.

The taker receives the Spot rate. In response he can either: confirm the deal; or query the Spot Rate.

If the Taker queries the Spot rate, the maker receives notification of the query. In response he can either: supply a new Spot Rate or cancel the deal if the Maker is not happy with any other rate.

The taker receives the new Spot rate. In response he can either: confirm the deal; query the Spot Rate again; or cancel the deal if the Taker is not happy that he will ever get a satisfactory (only available if queried once already) .

Once the Taker confirms the Deal it is now complete.

The system recognizes the stage at which a deal is at within the dealing process, and watches for particular phrases pertinent to the particular stage of the deal process. If no deal is currently in progress within a chat panel, the system monitors the chat panel for indications of a request for quote. The system watches for the following terms that indicate a request for quote has been initiated within a chat panel conversation:

An indication of the instrument type (FX Forward)

An indication of a currency pair

An indication of an amount for the near period

An indication of an amount for the far period

An indication of the currency of the amounts

An indication of a duration/forward date for value date

An indication of duration/forward date for maturity date

A request for quote should include at least the following:

an indication of the currency pair

An indication of the instrument type

An indication of a duration/forward date

Some examples of a request for quote are as follows:

hihi Fwd 3m CHF pls - *The taker is requesting a quote for an FX Forward for USD/CHF Value date is Spot date maturing in 3 months*

hi Swap 10 mio CHF s/n pls - *The taker is requesting a quote for an FX Forward in USD/CHF for 10 million USD spot next (Value date is Spot date, maturity date is day after spot date)*

Hihi Forward cable in 10 maturity 5 Jan 01 pls - *The taker is requesting a quote for an FX Forward in GBP/USD for 10 million GBP value on Spot date maturing on the 5th of January 2001*

Hi frd Fwd-Fwd GBP/EUR 6 months v 1yr pls - *the taker is requesting a quote for an FX Forward in GBP/EUR value date in 6 months maturing in 1 years time*

Hi swp CHF, 6 mths 10mio at near end 10,500,000 at far - *the taker is requesting a quote for a USD/CHF FX Forward, 10 million USD exchanged at spot date and 10,500,000 USD at maturity date (6 months)*

The system parses all variables indicated as part of an RFQ from the conversation to the appropriate field in the Deal stack. If the system has

identified a request for quote, and the RFQ has been sent to the maker, it monitors the chat panel for indications of a response to the request for quote. The system watches for the following terms within the chat panel that indicate a response to the request for quote:

Indication of a spot bid quote

Indication of a spot offer quote

Indication of a forward quote for value date

indication of a refusal to quote

an indication of an amount

A response to a request for quote includes an amount (if not supplied in the RFQ) together with at least one of the following:

a bid quote

an offer quote

OR

a refusal to quote

Some examples of a response to a request for quote:

60/56 - *The maker provides a two way quote, bid/offer*

4696/4700 - *The maker provides a two way quote bid/offer*

38/30 - *the maker provides a two way quote bid/offer*

56-60 upto 10 - *the maker provides a two way quote, bid/offer, and an indication of amount, 10 million, the "upto" is ignored by the system.*

Nothing - Maker refuses to quote

The system parses all variables indicated by the maker in the response to a request for quote, from the conversation to the appropriate fields in the Deal

Stack. A refusal to quote is indicated if the maker inputs this intention into the chat panel or the maker cancels the deal in the deal stack. If the maker refuses to quote, the system concludes that the deal has been cancelled. If the maker refuses to quote, the system re-starts its monitoring process and look for a request for quote within the conversation. The system ensures that the following variables have been parsed from the conversation to the deal stack prior to permitting the taker to indicate his intention to buy or sell:

An indication of a duration/forward date

The currency pair

A Near amount

A Far amount

The currency of the amount

A bid and/or an offer

If the above variables have not all been successfully parsed to the deal stack, the system requests that the maker input the missing variables prior to indicating his intention to send. If the system has identified a response to a request for quote, and the response has been sent to the taker, the system monitors the chat panel for a response to the quote.

The system watches for the following terms within the chat panel that indicate a response to the quote:

an indication to buy/sell (base currency) at the LHS (Left Hand Side) price

an indication to sell/buy (base currency) at the RHS (Right Hand Side) price

an indication to buy/sell (foreign currency) at the RHS price

an indication to sell/buy (foreign currency) at the LHS price

an indication of a cancellation of the deal

A response to a quote shall include at least one of the following:

an indication to buy/sell

an indication to sell/buy

an indication of a cancellation of the deal

Some examples of a response to quote:

Ok, I buy/sell - *the taker is happy with quote and agrees to buy local currency on spot date and sell local currency at maturity at the RHS price*

Ok, I s/b - *the taker is happy with quote and agrees to sell local currency on spot date and buy local currency at maturity at the LHS price*

Nothing thks. - *the taker does not like the quote and does not wish to deal*

A cancellation of the deal is indicated if the taker inputs his intention to cancel (he does not like the price) or the taker cancels the deal in the deal stack. If the taker cancels the deal, the system re-starts its monitoring process and looks for a request for quote within the conversation. If the system has identified a response to quote, and the response to quote has been sent to the maker, the system monitors the chat panel for provision of Spot Rate. The system watches for the following terms within the chat panel that indicate a provision of Spot Rate:

a provision of Spot Rate

an indication of a cancellation of the deal (only if Spot rate has already been queried

Some examples of a provision of Spot Rate:

1.4350 B *the maker is willing to use a Spot Rate of 1.435*

If the system has identified a provision of spot rate, and the rate has been sent to the taker, the system shall monitor the chat panel for response to the Spot Rate.

The system watches for the following terms within the chat panel that indicate a response to the Spot Rate:

an indication of deal confirmation

an indication of querying the Spot rate

an indication of a cancellation of the deal (only if at least one rate has previously been provided)

Some examples of a querying the Spot rate are as follows:

check spot - *terse minimum query*

check spot seems high - *qualified query*

The system shall return the entire line that includes the querying of the Spot rate and use it as the text to a Spot Rate Query warning to the maker:

Some examples of a Deal Confirmation are:

Ok - *confirmation, deal is complete*

Confirm - *confirmation, deal is complete*

Done B*Confirmation, deal is complete*

If the maker confirms the deal within the conversation, the system confirms the related deal entry within the Deal Stack. A cancellation of the deal is indicated if the maker inputs his intention to cancel (he does not like something) or the maker cancels the deal in the deal stack. If the maker or taker cancels the deal, the system re-starts its monitoring process and look for a request for quote within the conversation. Once the taker has confirmed the deal, the

system confirms the deal in the deal stack and re-starts its monitoring process and looks for a request for quote within the conversation.

As part of a request for quote, the system requires the user to enter one of the following terms to indicate that the deal is a FX Forward deal.

Swap

Swp

Fwd

Forward

Fwd-fwd

Fwd fwd

Fwdfwd

Fwd/fwd

As part of the request for quote, the system requires the user to specify a currency pair. For example:

Swap 6m Stg pls = FX Forward 6 months for GBP/USD

Swp 3m EUR pls = FX Forward, 3 months for EUR/USD

Fwd 23/01 Eur in 10 pls = FX Forward for EUR/USD, amount is 10 million EUR, maturity is 23/01/01

Forward 9mth CHF for 20 = FX Forward, 9 months for USD/CHF, amount is 20 million USD

The system permits the user to specify an amount of currency to buy or sell, for example:

Swp 10 mio GBP against USD 6m pls = GBP/USD, 10 million GBP, 6 months duration

Swap Eur pls, 10 million US 6m = EUR/USD, 10 million USD, 6 months duration

If the user does not specifically indicate the currency of the amount, the system interprets the amount to represent the amount in the base currency of the currency pair. For example:

Out eur 10mio 3m pls = EUR/USD 10 million EUR, 3 months

Out chf for 10 months, 20 mio = USD/CHF, 10 months, 20 million USD

50 mio Welly out pls, 3m = NZD/USD, 50 million NZD, 3 months

The system permits the user to enter a second amount to represent the amount far end (maturity date) of the FX Forward. The system permits the user to indicate the amount at the far end of the FX Forward in the following formats:

[Amount] at far end/leg

split amount (at far end/leg) [Amount]

[Amount] split amount (at far end/leg)

Cock amount (at far end/leg) [Amount]

[Amount] cock amount (at far end/leg)

The system permits the user to express a duration for the deal as part of the request for quote, and permits the user to express a maturity date in lieu of a duration as part of the request for quote. The user can express a period to represent the value date, and can express a date to represent the value date in lieu of a period. The user may enter points to represent the bid quote for an FX Forward Deal and to represent the offer quote for an FX Forward Deal. If the user enters both a bid and offer quote in points, the system interprets and parses the first value (on the left) of the two quotes as the bid quote, and interprets and parses the second value (on the right) of the two quotes as the offer quote. In

this case, and the bid quote is higher than the offer quote and the value date is prior to spot date (e.g. tomorrow), the system adds the bid quote points (on the left) to the spot bid rate to calculate the forward bid rate. This rate represents the rate at which you buy base currency on the first leg (near date) of the FX Forward. In this situation, the forward rate for the currency pair is less than then the near rate. If, the bid quote is higher than the offer quote and the value date is prior to spot date (e.g. tomorrow), the system adds the offer quote points (on the right) to the spot offer rate to calculate the forward offer rate. This rate represents the rate at which you sell base currency on the first leg (near date) of the FX Forward. In this situation, the forward rate for the currency pair is less than then the near rate. If the bid quote is higher than the offer quote and the maturity date is after the spot date (e.g. 1 week), the system subtracts the bid quote points (on the left) from the spot bid rate to calculate the forward bid rate. This rate represents the rate at which you sell base currency on the second leg (far date) of the FX Forward. In this situation, the forward rate for the currency pair is less than then the near rate. If the bid quote is higher than the offer quote and the maturity date is prior to spot date (e.g. tomorrow), the system subtracts the offer quote points (on the right) to the spot offer rate to calculate the forward offer rate. This rate will represent the rate at which you buy base currency on the second leg (far date) of the FX Forward. In this situation, the forward rate for the currency pair is less than then the near rate.

If the bid quote is lower than the offer quote and the value date is prior to spot date (e.g. tomorrow), the system shall subtract the bid quote points (on the left) from the spot bid rate to calculate the forward bid rate. This rate represents the rate at which you buy base currency on the first leg (near date) of the FX Forward. In this situation, the forward rate for the currency pair is more than then the near rate.

If the bid quote is lower than the offer quote and the value date is prior to spot date (e.g. tomorrow), the system subtracts the offer quote points (on the

right) from the spot offer rate to calculate the forward offer rate. This rate represents the rate at which you sell base currency on the first leg (near date) of the FX Forward. In this situation, the forward rate for the currency pair is more than then the near rate.

If the bid quote is lower than the offer quote and the maturity date is after the spot date (e.g. 1 week), the system adds the bid quote points (on the left) to the spot bid rate to calculate the forward bid rate. This rate represents the rate at which you sell base currency on the second leg (far date) of the FX Forward. In this situation, the forward rate for the currency pair is more than then the near rate.

If the bid quote is higher than the offer quote and the maturity date is prior to spot date (e.g. tomorrow), the system adds the offer quote points (on the right) to the spot offer rate to calculate the forward offer rate. This rate represents the rate at which you buy base currency on the second leg (far date) of the FX Forward. In this situation, the forward rate for the currency pair is more than then the near rate.

The user can enter a spot bid quote in association with the FX Forward to represent the spot bid rate and can enter a spot offer quote in association with the FX Forward to represent the spot offer rate. If the user has not entered a spot bid quote in association with the FX Forward, the system uses the spot market mid rate of the particular currency pair to represent the spot bid rate. If the user has not entered a spot bid quote in association with the FX Forward, the system uses the spot market mid rate of the particular currency pair to represent the spot offer rate.

If neither of the two legs of the swap fall on Spot date, the system permits the user to enter a value date bid quote in association with the FX Forward and to enter a value date offer quote in association with the FX Forward.

The user can enter the forward bid or offer rate directly to represent the bid quote for an FX Forward.

If the user is quoting using the forward rates, the system shall interpret the first of the rates (on the left) as the bid quote and the second of the rates (on the right) as the offer quote.

The user can indicate his preference to Buy the stated amount of currency at the near date and sell the stated amount of currency at the far date by using the following terms:

buy/sell

buy sell

b/s

b s

I buy [amount] [currency] on [value date]

The user can indicate his preference to sell the stated amount of currency at the near date and buy the stated amount of currency at the far date, by using the following terms:

sell/buy

Sell buy

sell&buy

s/b

s b

I sell [amount] [currency] on [value date]

The user can indicate his intention to buy/sell or sell/buy. For example:

I sell/buy CHF = User sells/buys previously indicated amount of CHF

S/b = User sells/buys previously indicated amount in previously indicated currency

In the case of an FX Forward deal where the taker is selling/buying, the system permits the maker to confirm the deal with the following additional terms:

buy/sell

buy sell

buy&sell

b/s

b s

In the case of an FX Forward deal where the maker is supplying a Spot Rate, the system permits the maker to supply the rate without the big figure. The system warns the user if there is no market rate available from which to derive the big figure.

It will be appreciated from the above that the invention provides a highly advantageous interface to the user in which the deal stack is presented to the user in a manner which is easy to interpret by the dealer who has to assimilate a lot of information, often in a very short space of time. By separating out information which is common to all instruments from information specific to a deal in any particular instrument, it is possible to present a deal list which is simple and easy to view. However, as the deal detail panel includes information related to a selected deal, the trader is never left without essential information relating to the deal on which he is working.

When trading on the system described, the trader has the choice of entering deal information through conversational chat which is parsed by the system or directly preferably using buttons on the user interface or keyboard driven menus. The trader can switch between the two during the progress of a

deal. This flexibility is possible as the deal related information input, whether it is parsed conversation or direct input only conveys to the deal stack that there has been a change of deal status. All other deal related activities are performed by the deal stack and include sending necessary messages to the rest of the system, for example to other trader terminal or to back office systems to produce deal tickets. The deal stack is also responsible for changing the functionality of the buttons on the button bar and the keyboard menus which are all deal status dependent.

It will be noted from the above that the activity of the parser in the deal process is limited to detecting changes in deal status. This enables the system to be more flexible. This contrasts with prior art systems which operate by a rigid exchange of conversational messages in which only one trader can "own" the cursor to a conversation at any one time. In the system described any party to a deal can enter conversations into the system at any time. However, if the conversation does not include terms which the parser is pre-programmed to recognise a deal related in that deal status, the conversation will not affect the deal process. Thus, the conversation does not have to ping pong from one party to the other. At any stage in the deal making process, the last party to send a conversational message can send a further message. If this does not contain content relevant to the deal in its present status it will be ignored by the parser and will not affect the deal.

Many modifications to the system described are possible within the scope of the invention. In particular the invention is not limited to any particular type of instruments, not to any type of trading system architecture beyond the limitations of the claims appended hereto.

1. A conversational dealing system for trading instruments between counterparties, comprising:

a plurality of trader terminals each having a user interface for inputting and displaying to a trader conversational messages including deal related information, the trader terminals communicating with each other via a communications network, the trader terminals each further comprising a parser for parsing said inputted conversational messages,

said parser comprising:

means for analyzing the conversational messages to detect a status of a deal, the deal having a plurality of possible statuses;

means for analyzing the conversational messages to detect deal related information relevant to the detected status of the deal; and

means for returning a parsed message comprising the deal status and the deal related information to the user interface.

2. A conversational dealing system according to claim 1, wherein the parser parses completed conversational messages provided from the user interface.

3. A conversational dealing system according to claim 1, wherein the parser includes means for monitoring all conversational messages received from the user interface to identify a new deal regardless of the deal status of a current deal.

4. A conversational dealing system according to claim 3, wherein the user interface includes means for initiating a new conversation between counterparties having at least one existing conversation when the new deal is identified.

5. A conversational dealing system according to claim 3, wherein the parser monitors the conversational messages to identify a request for a quote (RFQ).

6. A conversational dealing system according to claim 1, wherein the possible deal statuses include no deal pending, request for a quote, quote, and buy/sell.

7. A conversational dealing system according to claim 1, wherein said means for returning the parsed messages comprise means for returning a deal information structure to the user interface.

8. A conversational dealing system according to claim 1, wherein the user interface displays a parsed message received from the parser and includes means for accepting or declining the parsed message prior to a communication of the parsed message to a counterparty.

9. A conversational dealing system according to claim 8, wherein the user interface further includes means for editing the parsed message prior to communication to a counterparty.

10. A conversational dealing system according to claim 8, wherein the means for accepting or declining the parsed message comprises at least one button on the user interface display operable by a pointing device.

11. A conversational dealing system according to claim 9, wherein the means for editing the parsed message comprises at least one button on the user interface display operable by a pointing device.

12. A conversational dealing system according to claim 1, further comprising a deal server, the deal server acting to check an acceptability of the parsed message from a first couterparty and to reject the parsed message without informing another counterparty when the parsed message is unacceptable.

13. A conversational dealing system according to claim 1, further comprising a chat server for handling non-deal related conversation, wherein a conversational message in which the parser does not detect any deal related information is sent to a destination trader via the chat server.

14. A conversational dealing system according to claim 1, wherein the parser is downloaded to the trader terminal when the trader terminal logs on to the conversational dealing system.

15. A conversational dealing system according to claim 14, wherein the parser is an applet.

16. A trader terminal for a conversational dealing system having a plurality of trader terminals communicating with each other via a communications network, the trader terminal comprising:

a user interface for inputting and displaying to a trader conversational messages including deal related information; and

a parser for parsing said inputted conversational messages;

wherein said parser includes:

means for analysing the conversational messages to detect a status of a deal, the deal having a plurality of possible statuses;

means for analyzing the conversational messages to detect deal related information relevant to the detected status of the deal; and

means for forming and returning to the user interface a parsed message comprising the deal status and the deal related information

17. A trader terminal according to claim 16, wherein the parser parses completed conversational messages provided from the user interface.

18. A trader terminal according to claim 16, wherein the parser includes means for monitoring all conversational messages received from the user interface to identify a new deal regardless of the deal status of a current deal.

19. A trader terminal according to claim 18, wherein the user interface includes means for initiating a new conversation between a counterparties having at least one existing conversation when the new deal is identified.

20. A trader terminal according to claim 18, wherein the parser monitors the conversational messages to identify a request for a quote (RFQ).

21. A trader terminal according to claim 16, wherein the possible deal statuses include no deal pending, request for a quote, quote, and buy/sell.

22. A trader terminal according to claim 16, wherein said means for returning the parsed messages comprises means for returning a deal information structure to the user interface.

23. A trader terminal according to claim 16, wherein the user interface displays a parsed message received from the parser and includes means for accepting or declining the parsed message prior to a communication of the parsed message to a counterparty.

24. A trader terminal according to claim 23, wherein the user interface further includes means for editing the parsed message prior to communication to a counterparty.

25. A trader terminal according to claim 23, wherein the means for accepting or declining the parsed message comprises at least one button on the user interface display operable by a pointing device.

26. A trader terminal according to claim 24, wherein the means for editing the parsed message comprises at least one button on the user interface display operable by a pointing device.

27. A trader terminal according to claim 16, further comprising a deal server, the deal server acting to check an acceptability of the parsed message from a first counterparty and to reject the parsed message without informing another counterparty when the parsed message is unacceptable.

28. A trader terminal according to claim 16, further comprising a chat server for handling non-deal related conversation, wherein a conversational message in which the parser does not detect any deal related information is sent to a destination trader via the chat server.

29. A trader terminal according to claim 16 wherein the parser is downloaded to the trader terminal when the trader terminal logs on to the trader terminal.

30. A trader terminal according to claim 29, wherein the parser is an applet.

31. A method of trading instruments between counterparties in a conversational trading system in which the counterparties communicate with each other via a communications network, the method comprising the steps of:

inputting conversational messages including deal related information to the system;

analyzing the conversational messages to detect a status of a deal, the deal having a plurality of possible statuses;

detecting deal related information relevant to the detected status of the deal; and

forming a parsed message including the deal status and at least part of the deal related information.

32. A method according to claim 31, wherein the conversational messages are provided from a user interface.

33. A method according to claim 31, further comprising parsing all conversational messages received to identify a new deal regardless of the deal status of a current deal.

34. A method according to claim 33, further comprising initiating a new conversation between counterparties having at least one existing conversation when the new deal is identified.

35. A method according to claim 33, further comprising monitoring the conversational messages to identify a request for a quote (RFQ).

36. A method according to claim 31, wherein the possible deal statuses include no deal pending, request for a quote, quote, and buy/sell.

37. A method according to claim 31, further comprising returning the deal related information to a user interface.

38. A method according to claim 31, further comprising:

displaying the parsed message; and

allowing one of the counterparties to accept or decline the parsed message prior to communicating the parsed message to the other counterparty.

39. A method according to claim 38, further comprising allowing the first party to edit the parsed message prior to communicating the parsed message to the other

counterparty.

40. A method according to claim 31, comprising checking an acceptability of the parsed message from a first counterparty; and

rejecting the parsed message without informing another counterparty when the parsed message is unacceptable.

41. A method according to claim 40, wherein the checking includes checking whether the counterparties have sufficient bilateral credit for a proposed deal in the parsed message.

42. A method according to claim 40, wherein the checking includes checking that the deal related information conforms to business rules of the conversational dealing system.

43. A method according to claim 31, further comprising sending conversational messages with no deal related information to one of the counterparties via a chat server.

44. A method according to claim 31, wherein if, on detection of a change of the status, insufficient deal related information is detected relevant to the status, an error message is sent to a user interface.

45. A method according to claim 44, wherein the error message is displayed in an area of the user interface dedicated to the deal in progress.

46. A method according to claim 45, wherein the error message identifies missing deal related information.

47. The conversational dealing system as recited in claim 3, wherein the deal related information of the current deal includes a first request for a quote; and

the new deal is identified when the parser detects a second request for a quote.

48. The conversational dealing system as recited in claim 18, wherein the deal related information of the current deal includes a first request for a quote; and

the new deal is identified when the parser detects a second request for a quote.

49. The conversational dealing system as recited in claim 33, wherein the deal related information of the current deal includes a first request for a quote; and

the new deal is identified when the parser detects a second request for a quote.

50. The conversational dealing system as recited in claim 1, wherein the parser retains no record of the passed message.

51. The conversational dealing system as recited in claim 16, wherein the parser retains no record of the passed message.

52. The conversational dealing system as recited in claim 31, wherein the parser retains no record of the passed message.

53. A conversational dealing system for trading instruments between counterparties, comprising:

a plurality of trader terminals each having a user interface for inputting and displaying to a trader conversational messages including deal related information, the trader terminals communicating with each other via a communications network, wherein the conversational messages are displayed in a colour coded form to

indicate to the user an origin of the conversational messages.

54. A conversational dealing system according to claim 53, wherein messages received from a counterparty trader terminal are displayed in a first colour and messages generated at the user interface are displayed in a second colour.

55. A conversational dealing system according to claim 54, wherein each trader terminal includes a parser for parsing conversational messages input into the terminal to extract deal related information and generate parsed messages, wherein parsed messages are displayed in a third colour.

56. A conversational dealing system according to claim 54, wherein warning messages are displayed in a fourth colour.

57. A conversational dealing system according to claim 54, wherein error messages are displayed in a fourth colour.

58. A conversational dealing system for trading instruments between traders, the system comprising:

a plurality of trader terminals coupled together to form a network, each trader terminal including a user interface and a parser; wherein

the user interface receives and displays conversational messages including deal related information related to deals between traders; and

the parser analyzes the conversational messages to detect a status of a current deal between traders, the parser further analyzes the conversational messages to detect the deal related information related to the status of the current deal, and the parser produces a parsed message including the status of the current deal and at least part of the deal related information.

59. The system as recited in claim 58, wherein the parser identifies a new deal regardless of the status of the current deal.

60. The system as recited in claim 59, wherein:

the deal related information of the current deal includes a first request for a quote; and

the new deal is identified when the parser detects a second request for a quote.

61. The system as recited in claim 59, wherein the user interface initiates a second conversation between traders having a first conversation when the new deal is identified.

62. The system as recited in claim 58, wherein the parser displays the parsed message to a trader and allows the trader to edit the parsed message before sending the parsed message to another trader.

63. The system as recited in claim 58, wherein the parser displays the parsed message to a trader and allows the trader to decline to send the parsed message to another trader.

64. The system as recited in claim 58, further comprising:

a deal server coupled to the trader terminals, the deal server receives the parsed message from the parser and determines whether the parsed message is acceptable based on the current status of the current deal; and

when the deal server determines that the parsed message is not acceptable, the deal server does not send the parsed message to another trader terminal.

65. The system as recited in claim 58, further comprising:

a chat server coupled to the trader terminals; wherein

the parser sends the conversational messages to the chat server when there is no deal related information in the conversational messages.

66. The system as recited in claim 58, wherein the parser is downloaded to a respective trader terminal when the respective trader terminal accesses the system.

67. The system as recited in claim 66, wherein the parser is an applet.

68. A computer readable storage medium including computer executable software for performing the steps of:

receiving conversation messages including deal related information;

analyzing the conversational messages to detect a status of a deal between traders;

analyzing the conversational messages to detect deal related information related to the status of the deal; and

producing a parsed message including the deal status and at least part of the deal related information.

69. The storage medium as recited in claim 68, wherein the software further performs the step of identifying a new deal regardless of the status of the current deal.

70. The storage medium as recited in claim 69, wherein:

the deal related information of the current deal includes a first request for a quote; and

the new deal is identified upon detection of a second request for a quote.

71. The storage medium as recited in claim 69, wherein the software further

performs the step of initiating a second conversation between traders having a first conversation when the new deal is identified.

72. The storage medium as recited in claim 68, wherein the software further performs the steps of displaying the parsed message to a trader and allowing the trader to edit the parsed message before sending the parsed message to another trader.

73. The storage medium as recited in claim 68, wherein the software further performs the steps of displaying the parsed message to a trader and allowing the trader to decline to send the parsed message to another trader.

74. The storage medium as recited in claim 68, wherein the software further performs the steps of:

determining whether the parsed message is acceptable based on the current status of the current deal; and

when the parsed message is not acceptable, inhibiting the parsed message from being sent to another trader terminal.

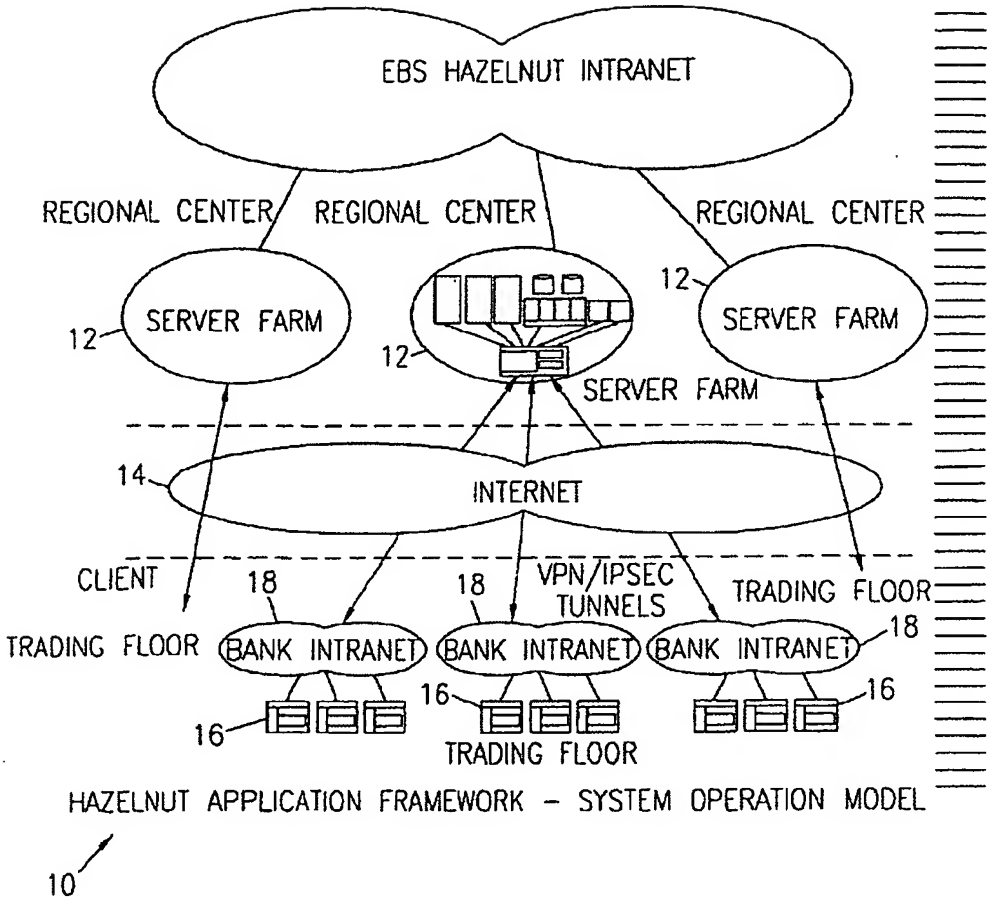
EBS HAZELNUT INTRANET
REGIONAL CENTER
REGIONAL CENTER
REGIONAL CENTER
12
SERVER FARM
12
12
SERVER FARM
SERVER FARM
14
INTERNET
CLIENT
18
18
VPN/IPSEC TUNNELS
TRADING FLOOR
TRADING FLOOR
BANK INTRANET
BANK INTRANET
BANK INTRANET
18
16
16
16
TRADING FLOOR
HAZELNUT APPLICATION FRAMEWORK - SYSTEM OPERATION MODEL
10

FIG. 1

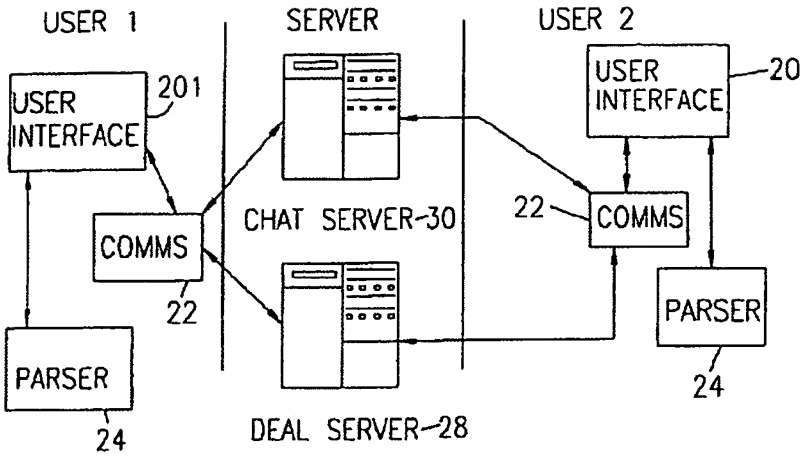
USER 1
SERVER
USER 2
USER INTERFACE
201
USER INTERFACE
20
COMMS
22
CHAT SERVER-30
22
COMMS
PARSER
24
PARSER
24
DEAL SERVER-28

FIG. 2

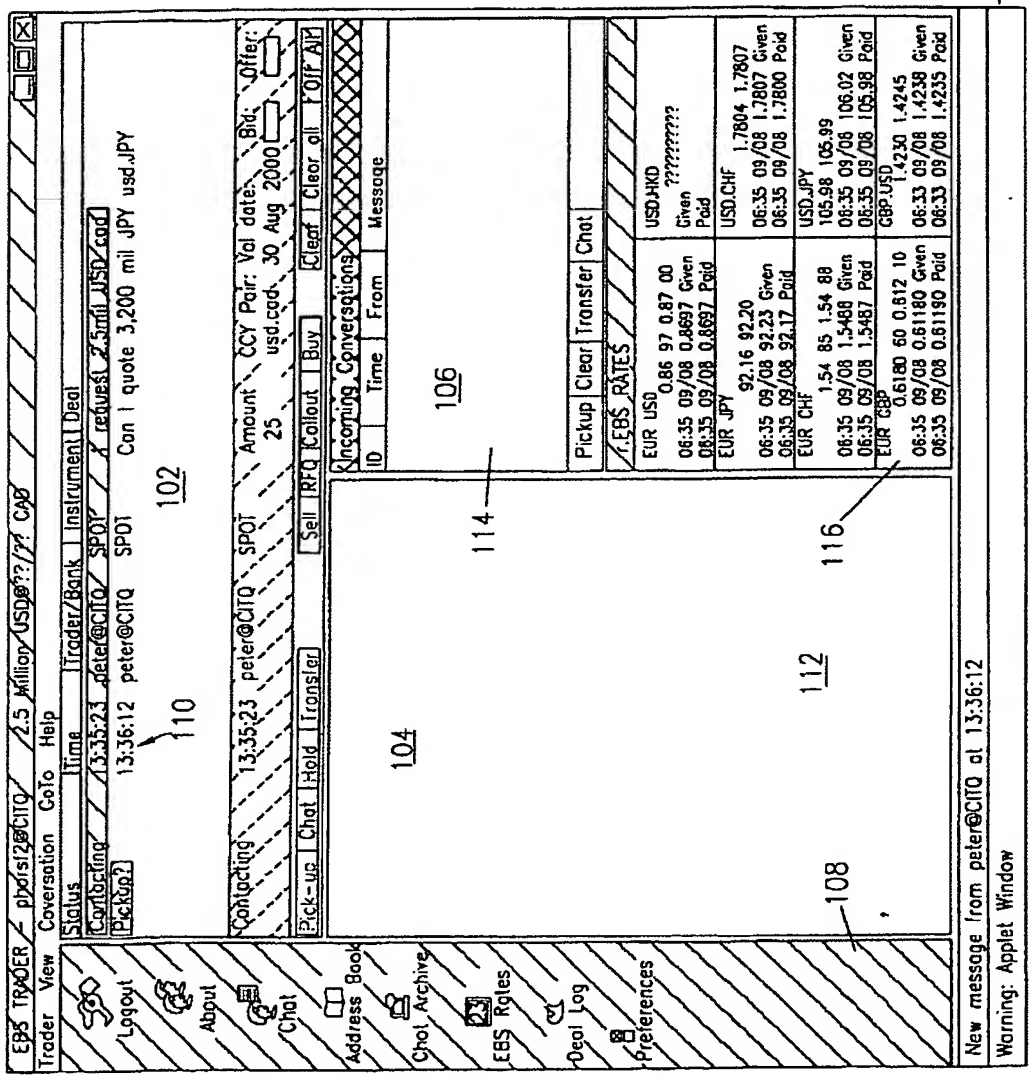
EBS TRADER
Trader View Conversation GoTo Help
Logout
About
Chat
Address Book
Chat Archive
EBS Rules
Deal Log
Preferences
Status
Time
Trader/Bank
Instrument
Deal
Contacting
13:35:23
peter@CITO
SPOT
Request 2.5mil USD cad
Pickup?
13:36:12
peter@CITO
SPOT
Con 1 quote 3,200 mil JPY usd.JPY
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Amount
CCY Pair:
Val date:
Bid:
Offer:
25
usd.cad
30 Aug
2000
Clear
Clear all
Pair All
Incoming Conversations
ID
Time
From
Message
Pickup
Clear
Transfer
Chat
EBS RATES
EUR USD
0.86 97 0.87 00
06:35 09/08 0.8697 Given
06:35 09/08 0.8697 Paid
USD.HKD
????????
Given
Paid
EUR JPY
92.16 92.20
06:35 09/08 92.23 Given
06:35 09/08 92.17 Paid
USD.CHF
1.7804 1.7807
06:35 09/08 1.7807 Given
06:35 09/08 1.7800 Paid
EUR CHF
1.54 85 1.54 88
06:35 09/08 1.5488 Given
06:35 09/08 1.5487 Paid
USD.JPY
105.98 105.99
06:35 09/08 106.02 Given
06:35 09/08 105.98 Paid
EUR GBP
0.6180 60 0.612 10
06:35 09/08 0.61180 Given
06:35 09/08 0.61190 Paid
GBP.USD
1.4230 1.4245
06:33 09/08 1.4238 Given
06:33 09/08 1.4235 Paid
New message from peter@CITO at 13:36:12
Warning: Applet Window
100
102
104
106
108
110
112
114
116

FIG. 3

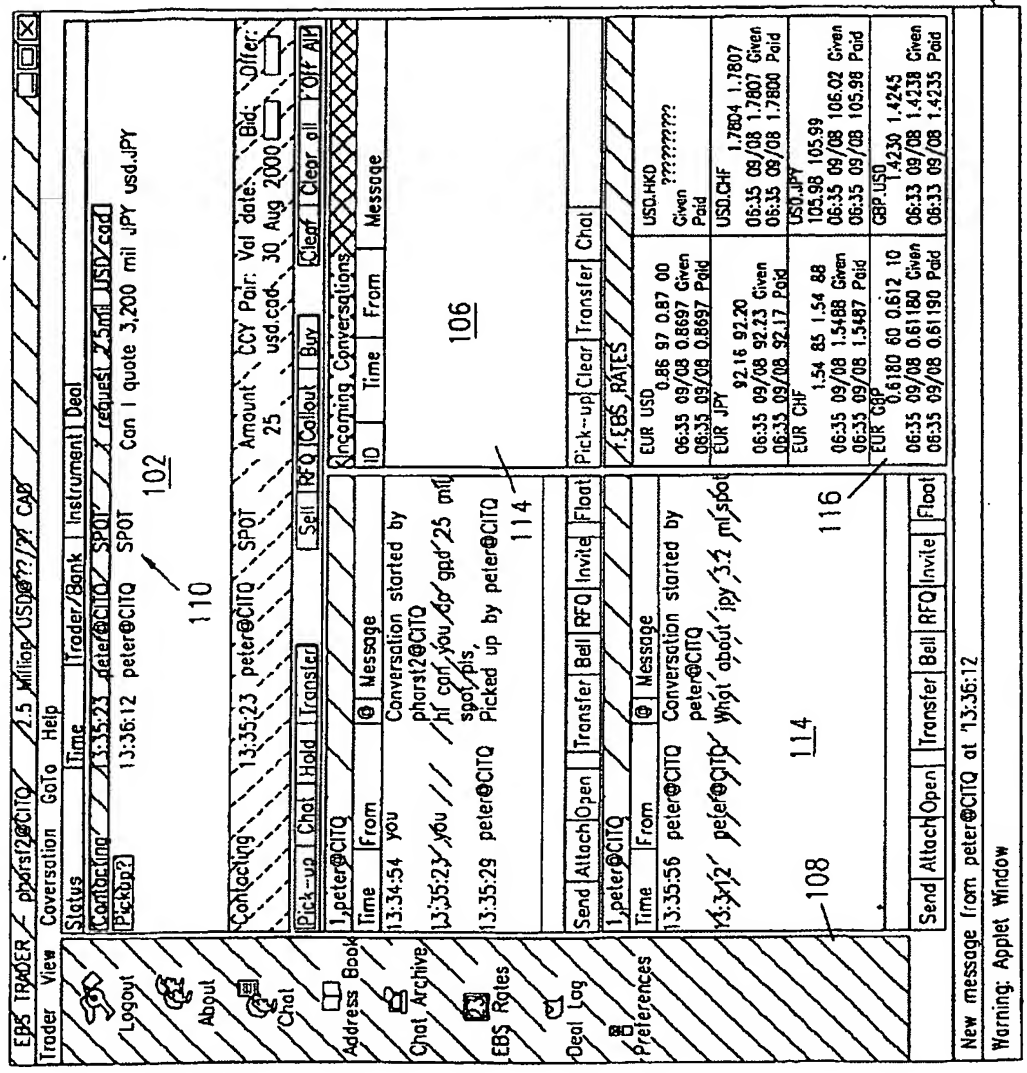
EBS TRADER
Trader View Conversation GoTo Help
Logout
About
Chat
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
Contacting 13:35:23 peter@CITQ SPOT request 25mil USD/cad
Pickup2 13:36:12 peter@CITQ SPOT Can I quote 3,200 mil JPY usd.JPY
102
110
Contacting 13:35:23 peter@CITQ SPOT Amount CCY Pair: Val date: Bid: Offer:
25 usd.cad 30 Aug 2000
Pick-up Chat Hold Transfer Sell RFQ Callout Buy Clear Clear all Y/Off AIM
1,peter@CITQ
Time From Message
13:34:54 you Conversation started by phorst2@CITQ
13:35:23 you hi can you do gpd 25 mil spot pls,
13:35:29 peter@CITQ Picked up by peter@CITQ
114
106
Send Attach Open Transfer Bell RFQ Invite Float
1,peter@CITQ
Time From Message
13:35:56 peter@CITQ Conversation started by peter@CITQ
13:36:12 peter@CITQ what about jpy 3.2 mil spot
108
114
116
Send Attach Open Transfer Bell RFQ Invite Float
Incoming Conversations
ID Time From Message
Pick-up Clear Transfer Chat
EBS RATES
EUR USD 0.86 97 0.87 00
06:35 09/08 0.8697 Given
06:33 09/08 0.8697 Paid
USD.HKD
Given ????????
Paid
EUR JPY 92.16 92.20
06:35 09/08 92.23 Given
06:33 09/08 92.17 Paid
USD.CHF 1.7804 1.7807
06:35 09/08 1.7807 Given
06:35 09/08 1.7800 Paid
EUR CHF 1.54 85 1.54 88
06:35 09/08 1.5488 Given
06:33 09/08 1.5487 Paid
USD.JPY 105.98 105.99
06:35 09/08 106.02 Given
06:35 09/08 105.98 Paid
EUR GBP 0.6180 60 0.612 10
06:35 09/08 0.61180 Given
06:35 09/08 0.61190 Paid
GBP.USD 1.4230 1.4245
06:33 09/08 1.4238 Given
06:33 09/08 1.4235 Paid
100
New message from peter@CITQ at 13:36:12
Warning: Applet Window

FIG. 4

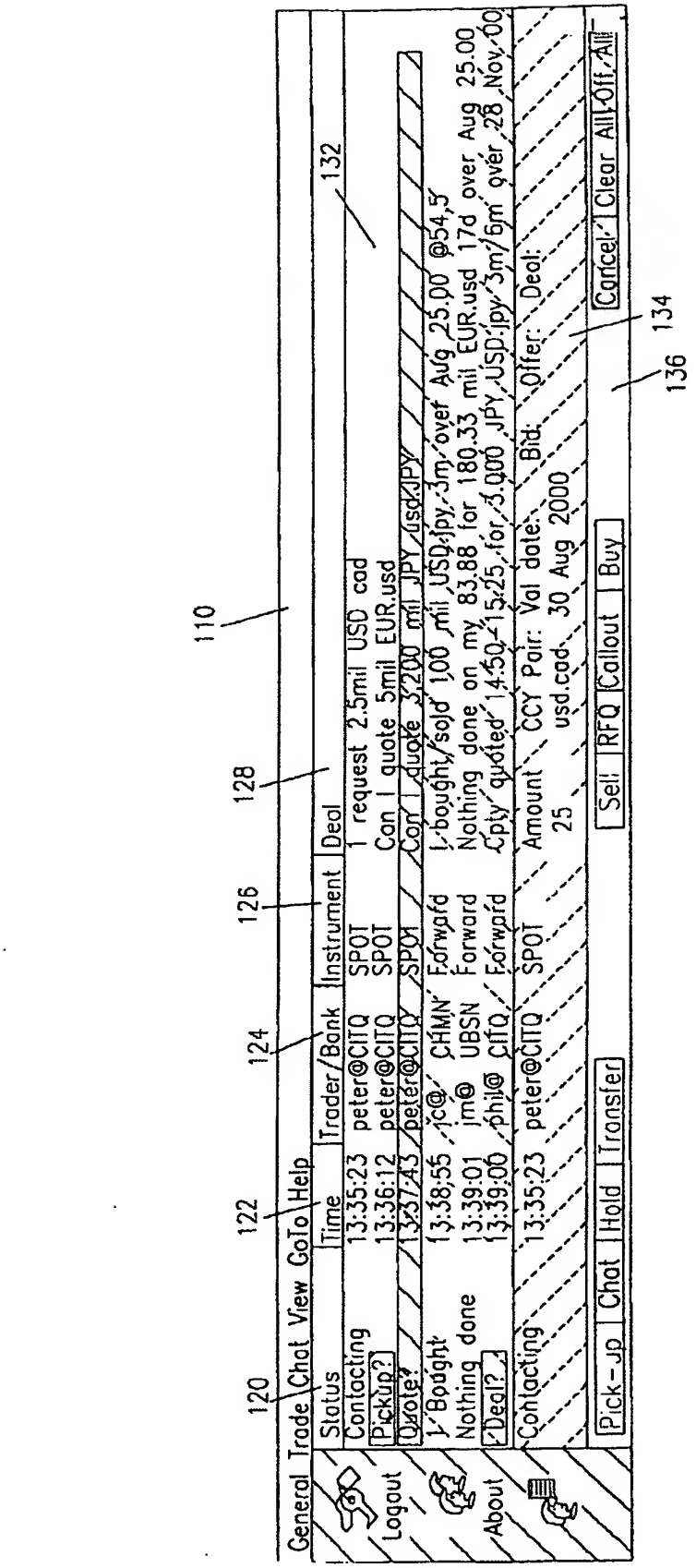
110
120
122
124
126
128
132
134
136
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Contacting
Pickup?
Quote?
I bought
Nothing done
Deal?
Contacting
13:35:23 peter@CITQ SPOT 1 request 2.5mil USD cad
13:36:12 peter@CITQ SPOT Can I quote 5mil EUR.usd
13:37:43 peter@CITQ SPOT Can I quote 3,200 mil JPY usd/JPY
13:38:55 jc@ CHMN Forward I bought/sold 100 mil USD/jpy 3m over Aug 25.00 @54.5
13:39:01 jm@ UBSN Forward Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
13:39:00 phil@ CITQ Forward Cpty quoted 14:50 15:25 for 3,000 JPY USD/jpy 3m/6m over 28 Nov 00
13:35:23 peter@CITQ SPOT
Amount
25
CCY Pair: Val date:
usd.cad 30 Aug 2000
Bid:
Offer:
Deal:
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Cancel
Clear All
Off All

FIG. 5

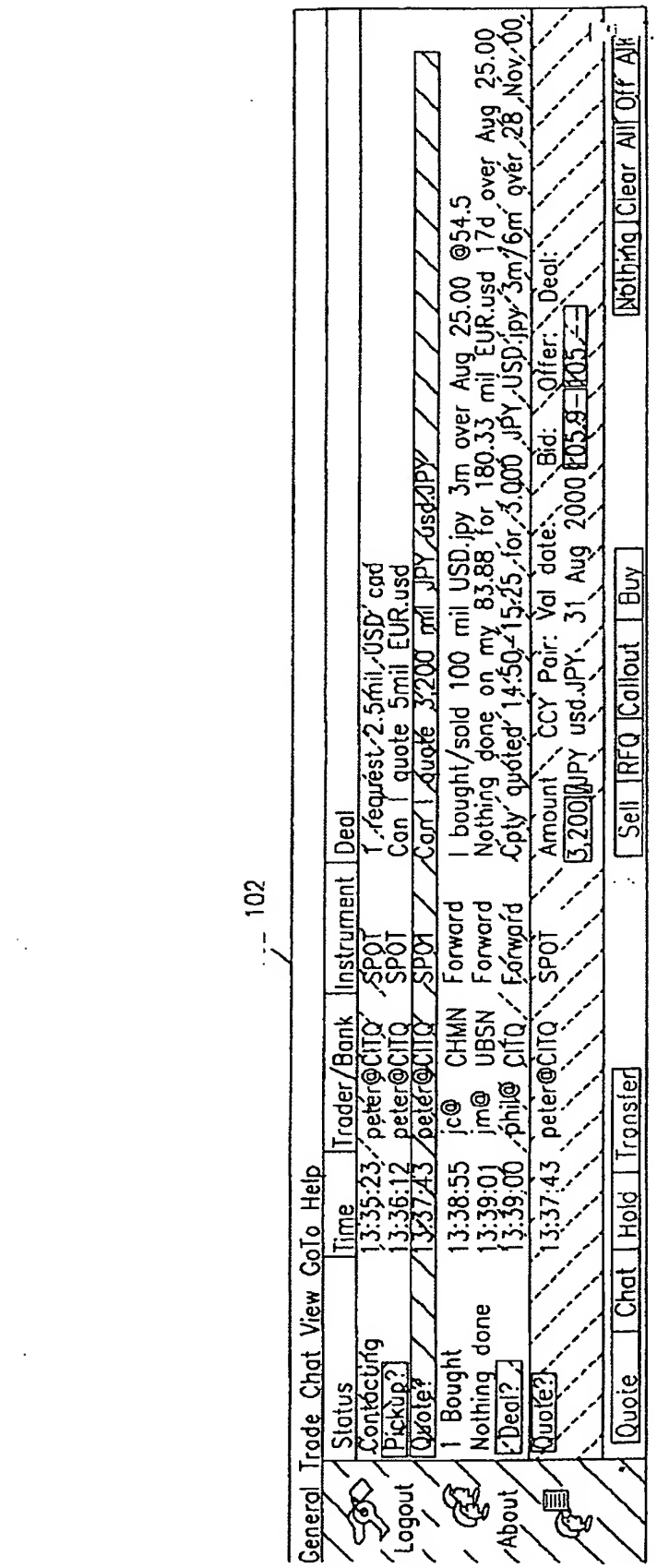
102
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Contacting
13:35:23
peter@CITQ
SPOT
1 request 2.5mil USD cad
Pickup?
13:36:12
peter@CITQ
SPOT
Can I quote 5mil EUR.usd
Quote?
13:37:43
peter@CITQ
SPOT
Can I quote 3200 mil JPY Usd.JPY
1 Bought
Nothing done
2 Deal?
13:38:55
jc@ CHMN
13:39:01
jm@ UBSN
13:39:00
phil@ CITQ
Forward
Forward
Forward
I bought/sold 100 mil USD.jpy 3m over Aug 25.00 @54.5
Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
Cpty quoted 14:50 15:25 for 3.000 JPY USD.jpy 3m/6m over 28 Nov 00
Quote?
13:37:43
peter@CITQ
SPOT
Amount CCY Pair: Val date: Bid: Offer: Deal:
5,200 JPY usd.JPY 31 Aug 2000 105.9 105.--
Quote
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Nothing
Clear All
Off Alk

FIG. 6

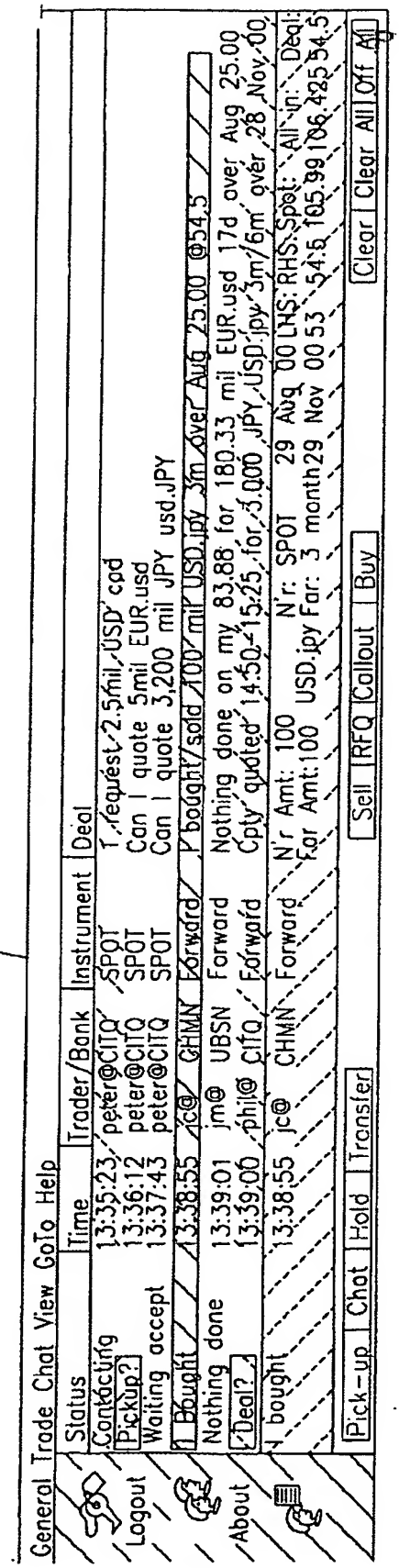
102
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Contacting
PickUp?
Waiting accept
13:35:23 peter@CITQ SPOT I request 2.5mil USD cad
13:36:12 peter@CITQ SPOT Can I quote 5mil EUR.usd
13:37:43 peter@CITQ SPOT Can I quote 3,200 mil JPY usd.JPY
I Bought
13:38:55 jc@ CHMN Forward I bought/sold 100 mil USD.jpy 3m over Aug 25.00 @54.5
Nothing done
'Deal?
13:39:01 jm@ UBSN Forward Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
13:39:00 phil@ CITQ Forward Cpty quoted 14.50-15.25 for 3.000 JPY/USD:jpy 3m/6m over 28 Nov 00
I bought
13:38:55 jc@ CHMN Forward Nr Amt: 100 Nr: SPOT 29 Aug 00 LHS: RHS: Spot: All in: Deal:
Far Amt:100 USD.jpy Far: 3 month 29 Nov 00 53 54.5 105.99 106.425 54.5
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Clear
Clear All
Off All

FIG. 7

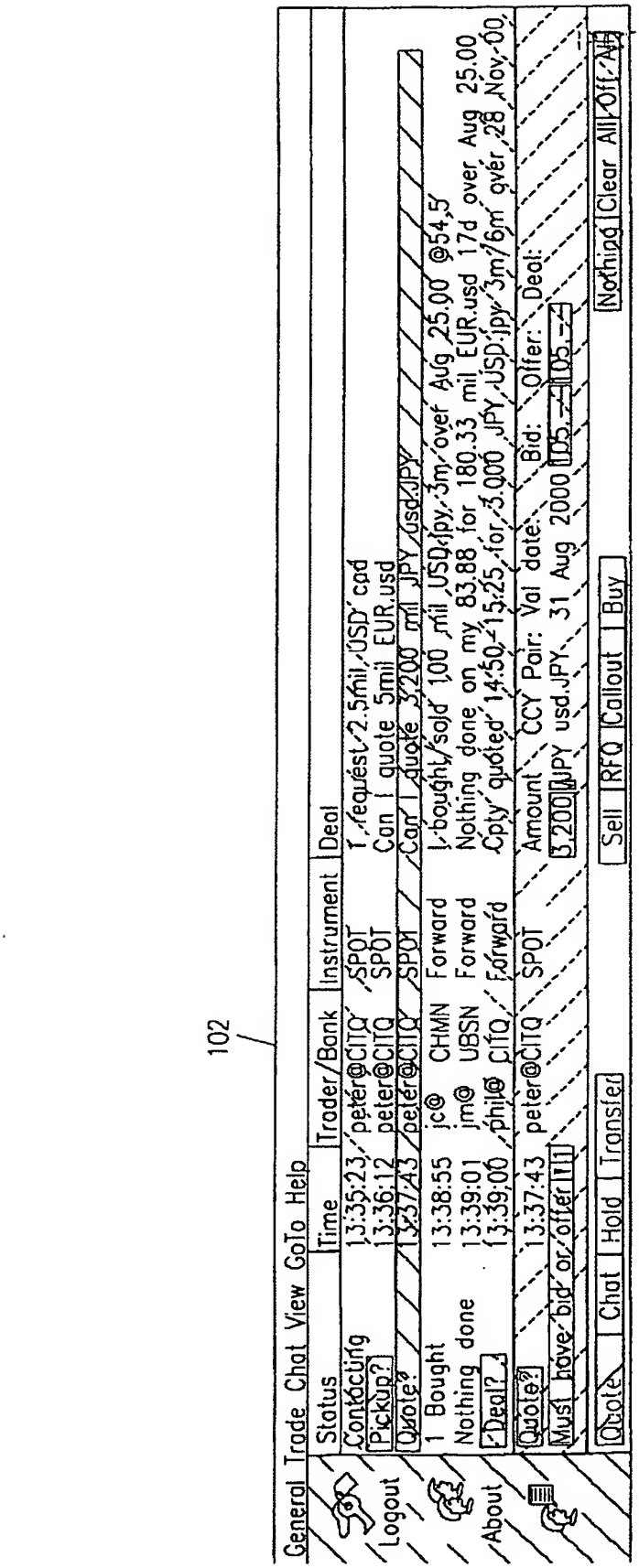
102
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Contacting
13:35:23
peter@CITQ
SPOT
r /request 2.5mil USD cad
Pickup?
13:36:12
peter@CITQ
SPOT
Con ! quote 5mil EUR.usd
Quote?
13:37:43
peter@CITQ
SPOT
Con ! quote 3,200 mil JPY usd/JPY
1 Bought
13:38:55
jc@
CHMN
Forward
I bought/sold 100 mil USD/jpy 3m over Aug 25.00 @54,5
Nothing done
13:39:01
jm@
UBSN
Forward
Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
Deal?
13:39:00
phil@
CITQ
Forward
Cpty quoted 14:50 15.25 for 3.000 JPY USD/jpy 3m/6m over 28 Nov-00
Quote?
13:37:43
peter@CITQ
SPOT
Amount CCY Pair: Val date: Bid: Offer: Deal:
Must have bid or offer !!!
3,200 JPY usd.JPY 31 Aug 2000 105.-2 105.-2
Quote
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Nothing
Clear All
Off-All

FIG. 8

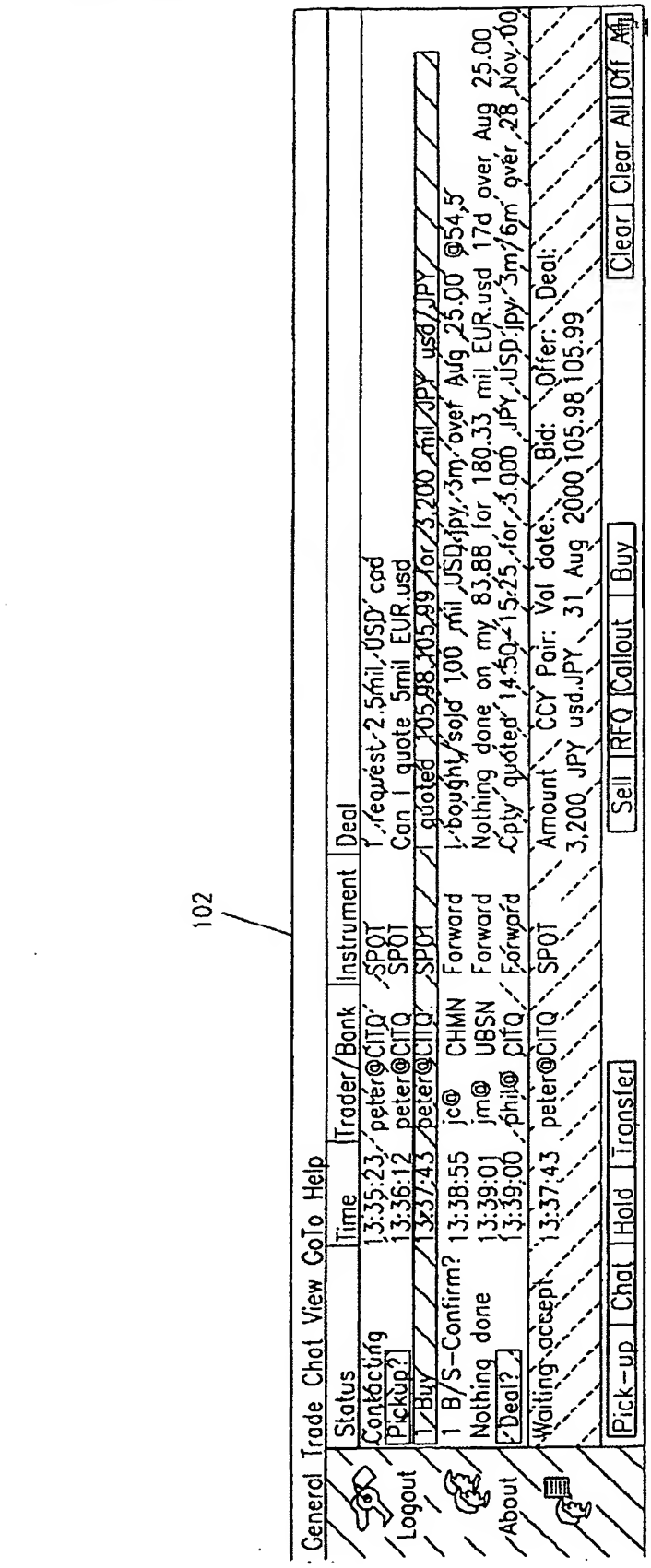
102
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Contacting
13:35:23
peter@CITD
SPOT
? request 2.5mil USD cad
Pickup?
13:36:12
peter@CITD
SPOT
Can I quote 5mil EUR.usd
1 Buy
13:37:43
peter@CITD
SPOT
I quoted 105.98 105.99 for 3,200 mil JPY usd/JPY
1 B/S-Confirm?
13:38:55
jc@
CHMN
Forward
I bought/sold 100 mil USDjpy 3m over Aug 25.00 @54.5
Nothing done
13:39:01
jm@
UBSN
Forward
Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
Deal?
13:39:00
phil@
CITD
Forward
Cpty quoted 14.50-15.25 for 3,000 JPY USDjpy 3m 6m over 28 Nov 00
Waiting accept
13:37:43
peter@CITD
SPOT
Amount CCY Pair: Val date: Bid: Offer: Deal:
3,200 JPY usd.JPY 31 Aug 2000 105.98 105.99
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Clear
Clear All
Off

FIG. 9

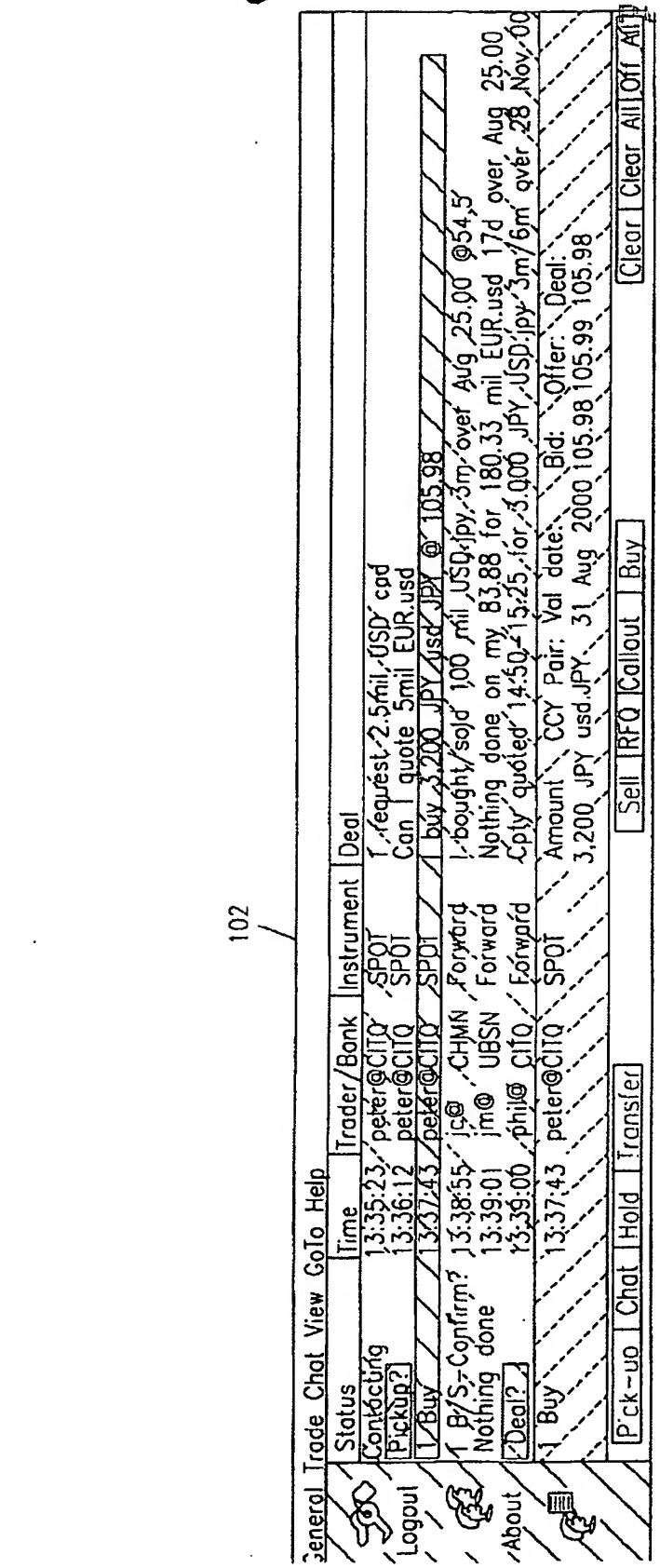
102
General Trade Chat View GoTo Help
Logout
About
Status
Time
Trader/Bank
Instrument
Deal
Confirming
13:35:23 peter@CITO SPOT 1 request 2.5mil USD cad
Pickup?
13:36:12 peter@CITO SPOT Can I quote 5mil EUR.usd
1 Buy
13:37:43 peter@CITO SPOT I buy 3,200 JPY usd JPY @ 105.98
1 B/S-Confirm?
13:38:55 jc@ CHMN Forward I bought/sold 100 mil USDjpy 3m over Aug 25.00 @54.5
Nothing done
13:39:01 jm@ UBSN Forward Nothing done on my 83.88 for 180.33 mil EUR.usd 17d over Aug 25.00
2Deal?
13:39:00 phil@ CITO Forward Copy quoted 14:50 15.25 for 3.000 JPY JSD:jpy 3m/6m over 28 Nov 00
1 Buy
13:37:43 peter@CITO SPOT Amount CCY Pair: Val date: Bid: Offer: Deal:
3,200 JPY usd.JPY 31 Aug 2000 105.98 105.99 105.98
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Clear
Clear All
Off
All

FIG. 10

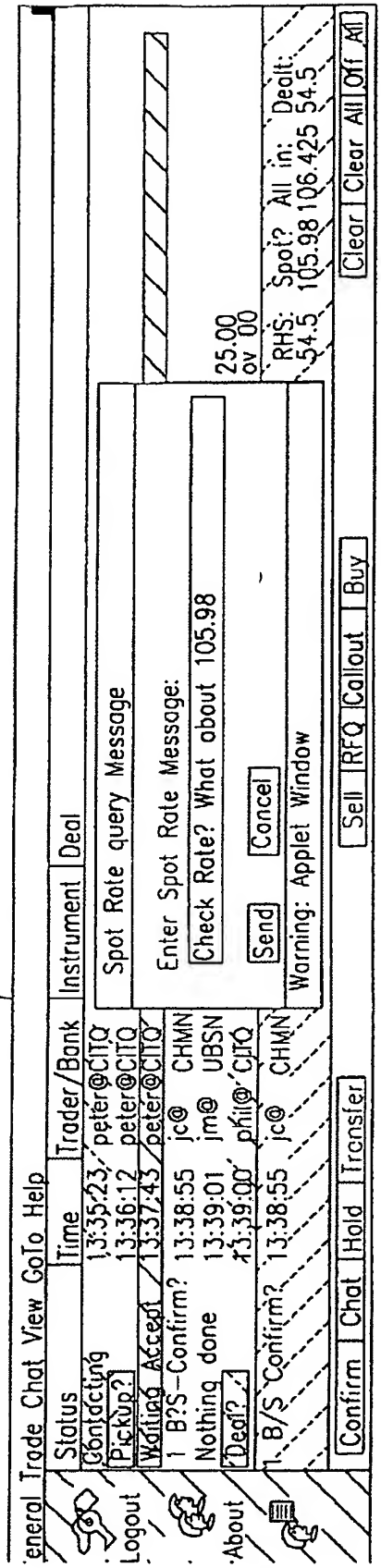
102
eneral Trade Chat View GoTo Help
Status
Time
Trader/Bank
Instrument
Deal
Contacting
Pickup?
Waiting Accept
1 B?S—Confirm?
Nothing done
Deal?
1. B/S Confirm?
13:35:23
13:36:12
13:37:43
13:38:55
13:39:01
13:39:00
13:38:55
peter@CITO
peter@CITO
peter@CITO
jc@ CHMN
jm@ UBSN
phil@ CITO
jc@ CHMN
Spot Rate query Message
Enter Spot Rate Message:
Check Rate? What about 105.98
Send
Cancel
Warning: Applet Window
25.00
ov 00
RHS:
54.5
Spot? All in: Dealt:
105.98 106.425 54.5
Logout
About
Confirm
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Clear
Clear All
Off All

FIG. 11

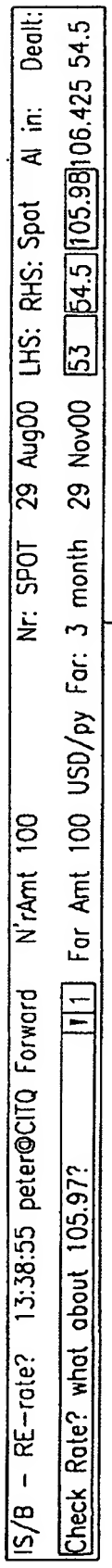
IS/B - RE-rate? 13:38:55 peter@CITQ Forward N'rAmt 100 Nr: SPOT 29 Aug00 LHS: RHS: Spot Al in: Dealt:
Check Rate? what about 105.97? 1 1 For Amt 100 USD/py For: 3 month 29 Nov00 53 54.5 105.98 106.425 54.5
134

FIG. 12

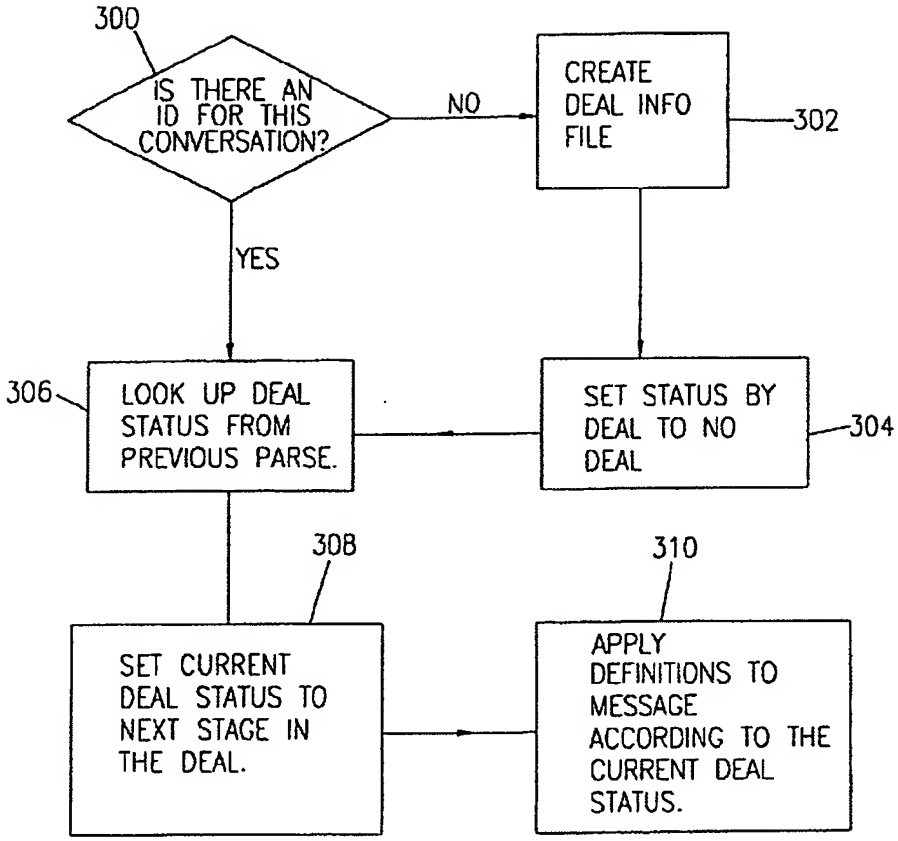
300
IS THERE AN ID FOR THIS CONVERSATION?
NO
CREATE DEAL INFO FILE
302
YES
306
LOOK UP DEAL STATUS FROM PREVIOUS PARSE.
SET STATUS BY DEAL TO NO DEAL
304
308
310
SET CURRENT DEAL STATUS TO NEXT STAGE IN THE DEAL.
APPLY DEFINITIONS TO MESSAGE ACCORDING TO THE CURRENT DEAL STATUS.

FIG. 13

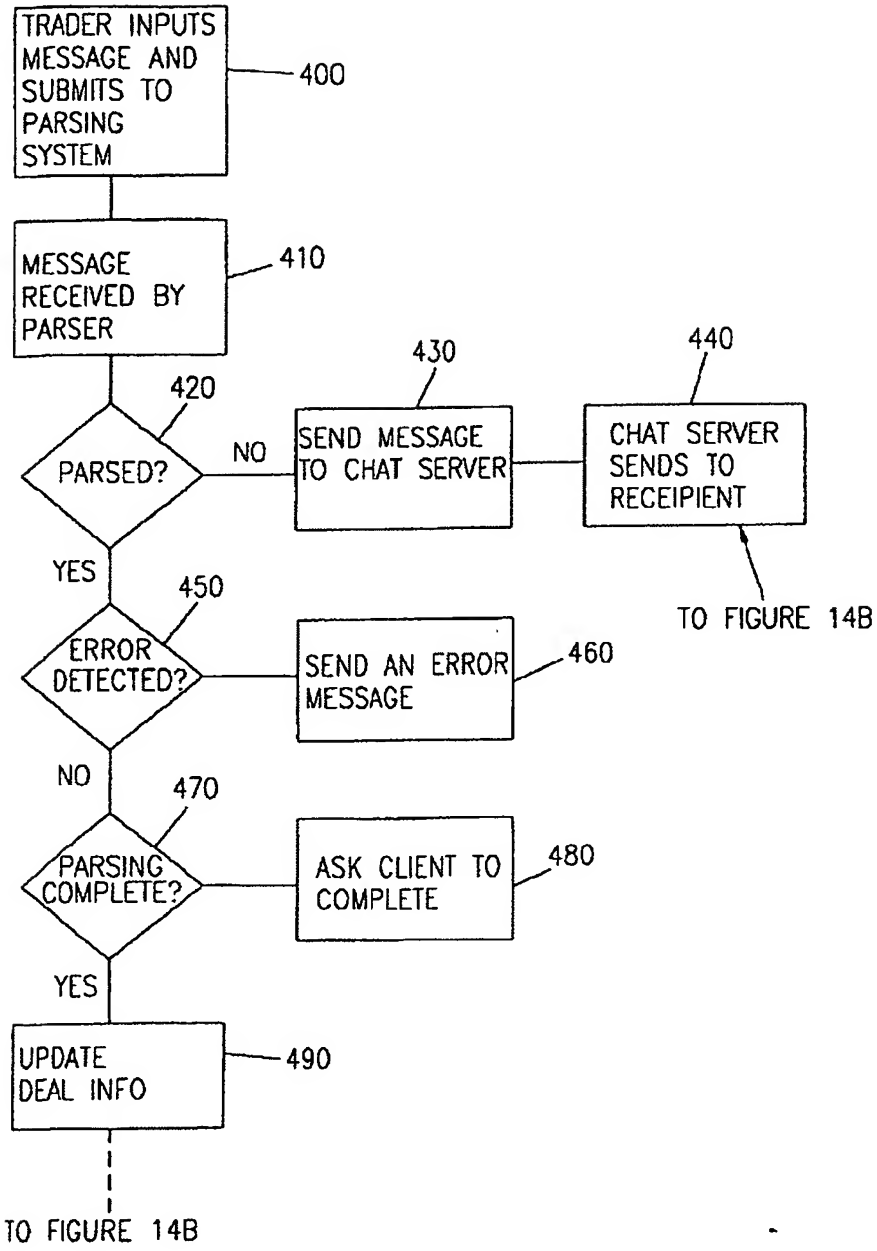
TRADER INPUTS MESSAGE AND SUBMITS TO PARSING SYSTEM
400
MESSAGE RECEIVED BY PARSER
410
420
PARSED?
NO
430
SEND MESSAGE TO CHAT SERVER
440
CHAT SERVER SENDS TO RECEIPIENT
TO FIGURE 14B
YES
450
ERROR DETECTED?
SEND AN ERROR MESSAGE
460
NO
470
PARSING COMPLETE?
ASK CLIENT TO COMPLETE
480
YES
UPDATE DEAL INFO
490
TO FIGURE 14B

FIG. 14A

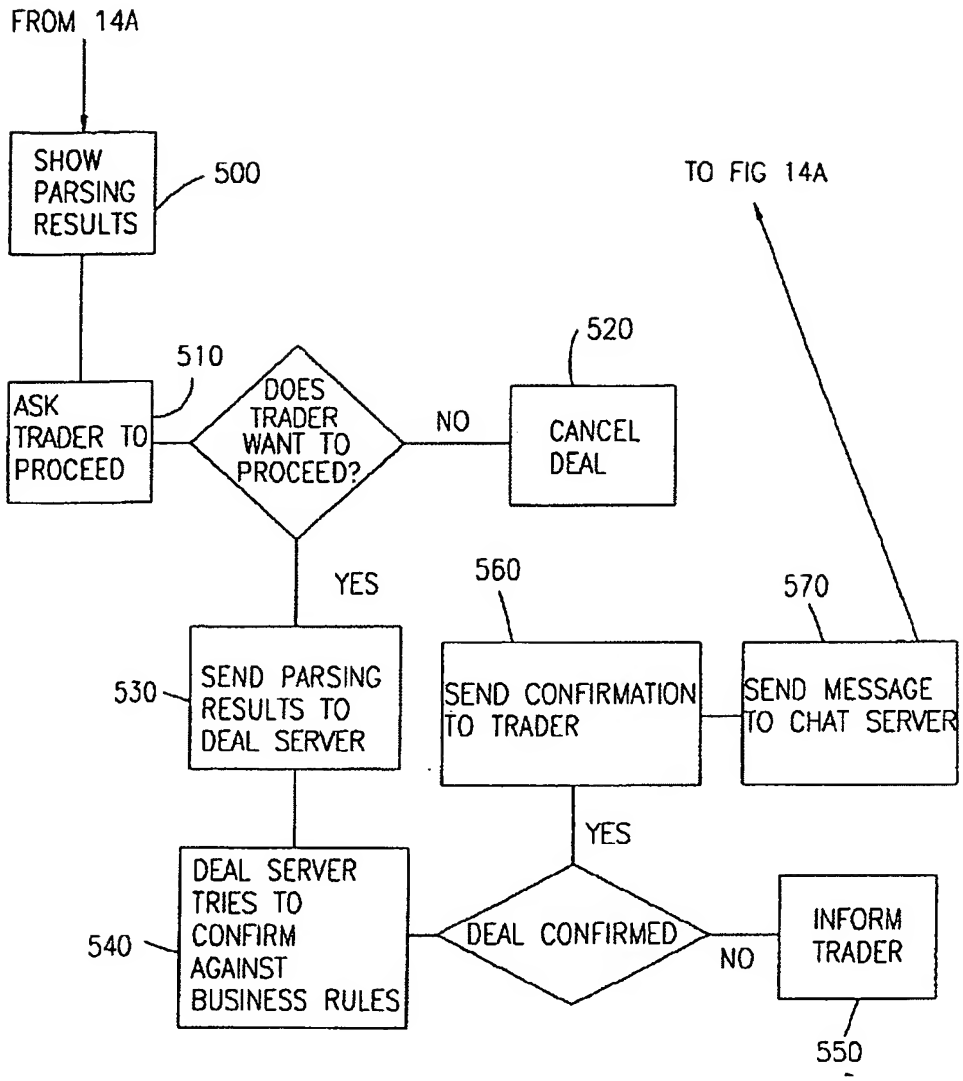
FROM 14A
SHOW PARSING RESULTS
500
TO FIG 14A
ASK TRADER TO PROCEED
510
DOES TRADER WANT TO PROCEED?
NO
520
CANCEL DEAL
YES
560
570
530
SEND PARSING RESULTS TO DEAL SERVER
SEND CONFIRMATION TO TRADER
SEND MESSAGE TO CHAT SERVER
YES
DEAL SERVER TRIES TO CONFIRM AGAINST BUSINESS RULES
540
DEAL CONFIRMED
NO
INFORM TRADER
550

FIG. 14B

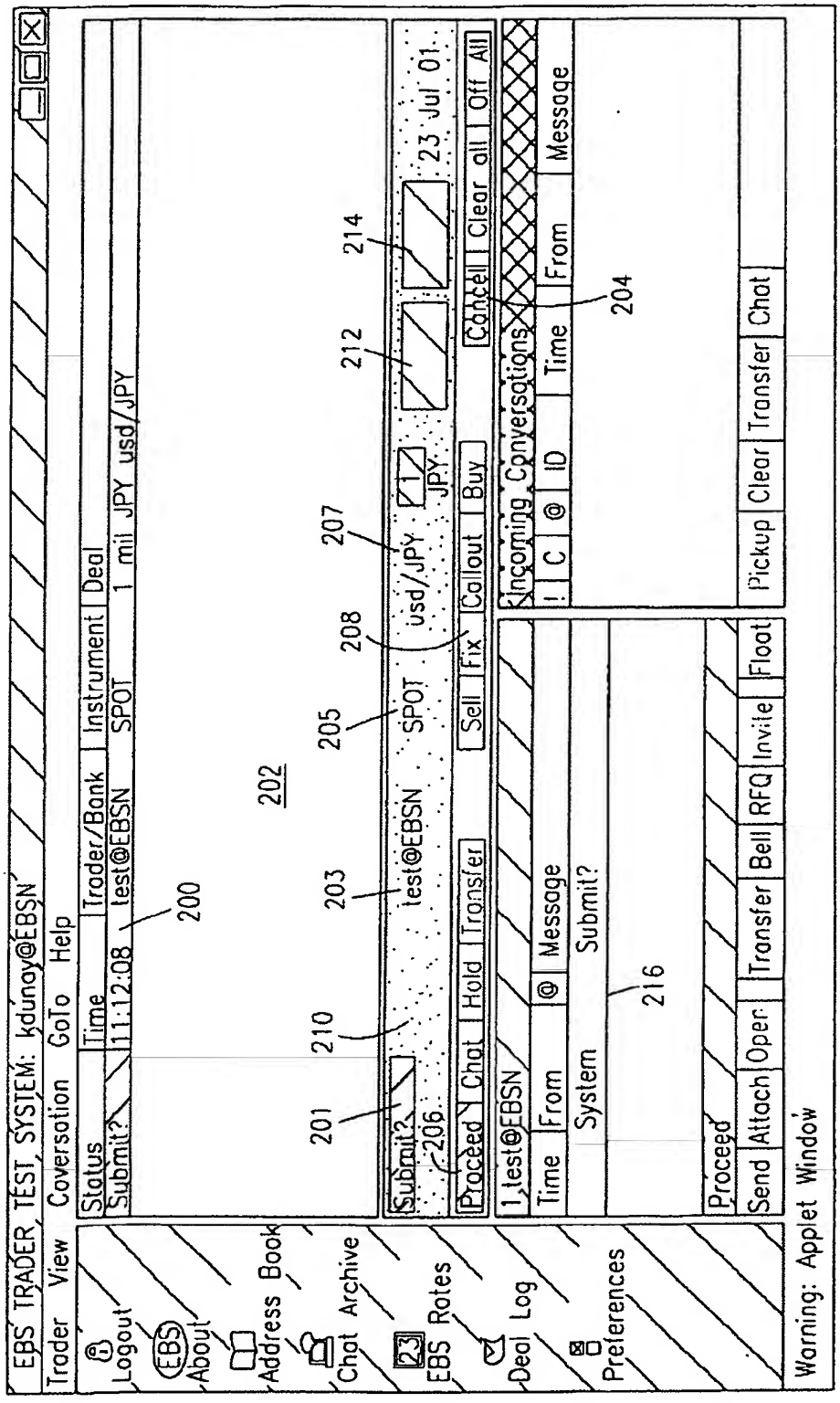
EBS TRADER TEST SYSTEM: kdunoy@EBSN
Trader View Coversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
Submit? 11:12:08 test@EBSN SPOT 1 mil JPY usd/JPY
200
202
201
210
203
205
208
207
212
214
Submit?
206
test@EBSN SPOT usd/JPY 1 JPY
23 Jul 01
Proceed Chat Hold Transfer
Sell Fix Callout Buy
Cancel Clear all Off All
1 test@EBSN
Time From @ Message
System Submit?
216
Incoming Conversations
! C @ ID Time From Message
204
Proceed
Send Attach Oper Transfer Bell RFQ Invite Float
Pickup Clear Transfer Chat
Warning: Applet Window

FIG. 15

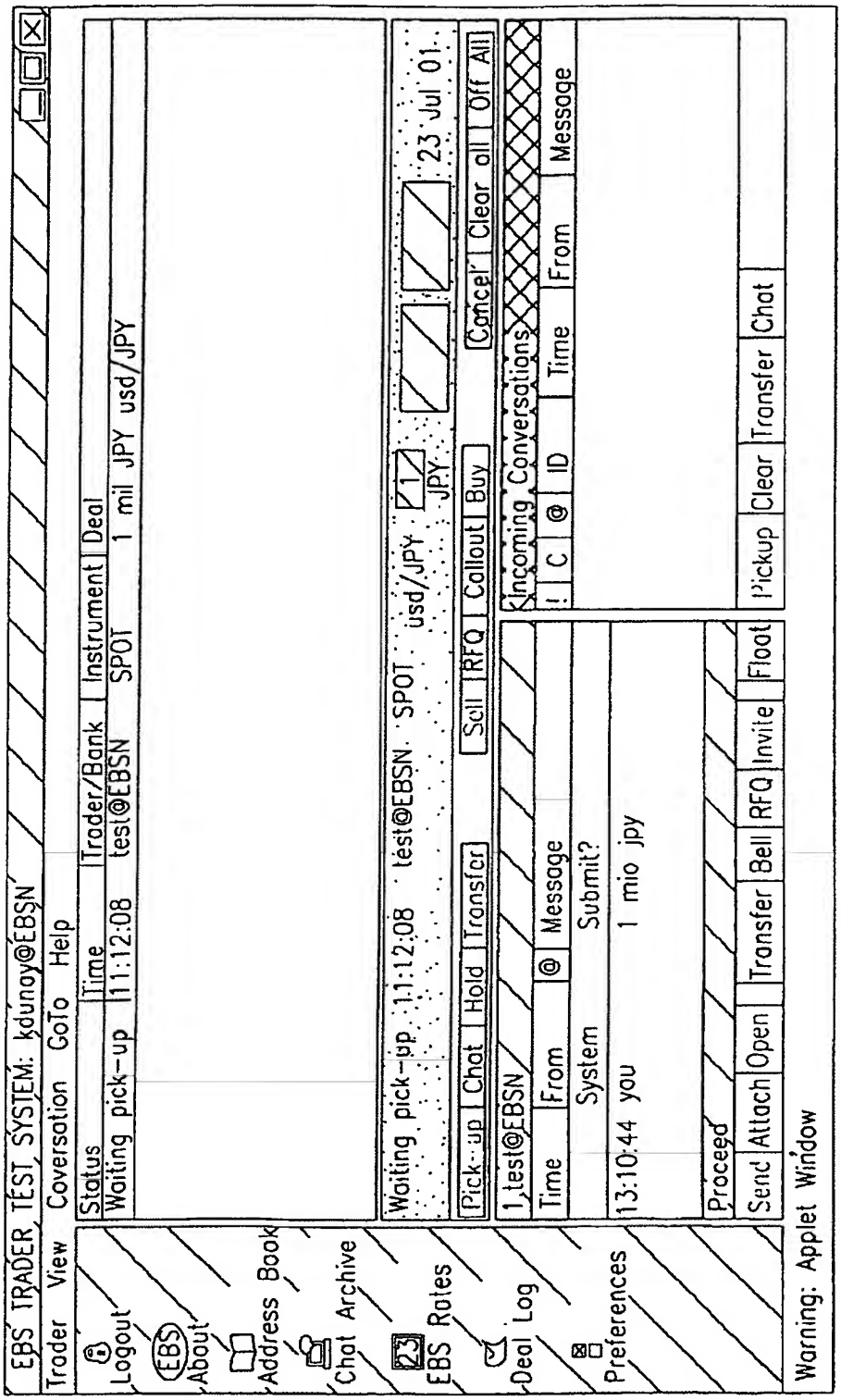
EBS TRADER TEST SYSTEM: kdunoy@EBSN
Trader View Coversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status
Time
Trader/Bank
Instrument
Deal
Waiting pick-up
11:12:08
test@EBSN
SPOT
1 mil JPY usd/JPY
Waiting pick-up 11:12:08 test@EBSN SPOT usd/JPY 1 JPY
23 Jul 01
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Cancel
Clear all
Off All
1 test@EBSN
Time
From
@
Message
System
Submit?
13:10:44 you
1 mio jpy
Proceed
Send
Attach
Open
Transfer
Bell
RFQ
Invite
Float
Incoming Conversations
!
C
@
ID
Time
From
Message
Pickup
Clear
Transfer
Chat
Warning: Applet Window

FIG. 16

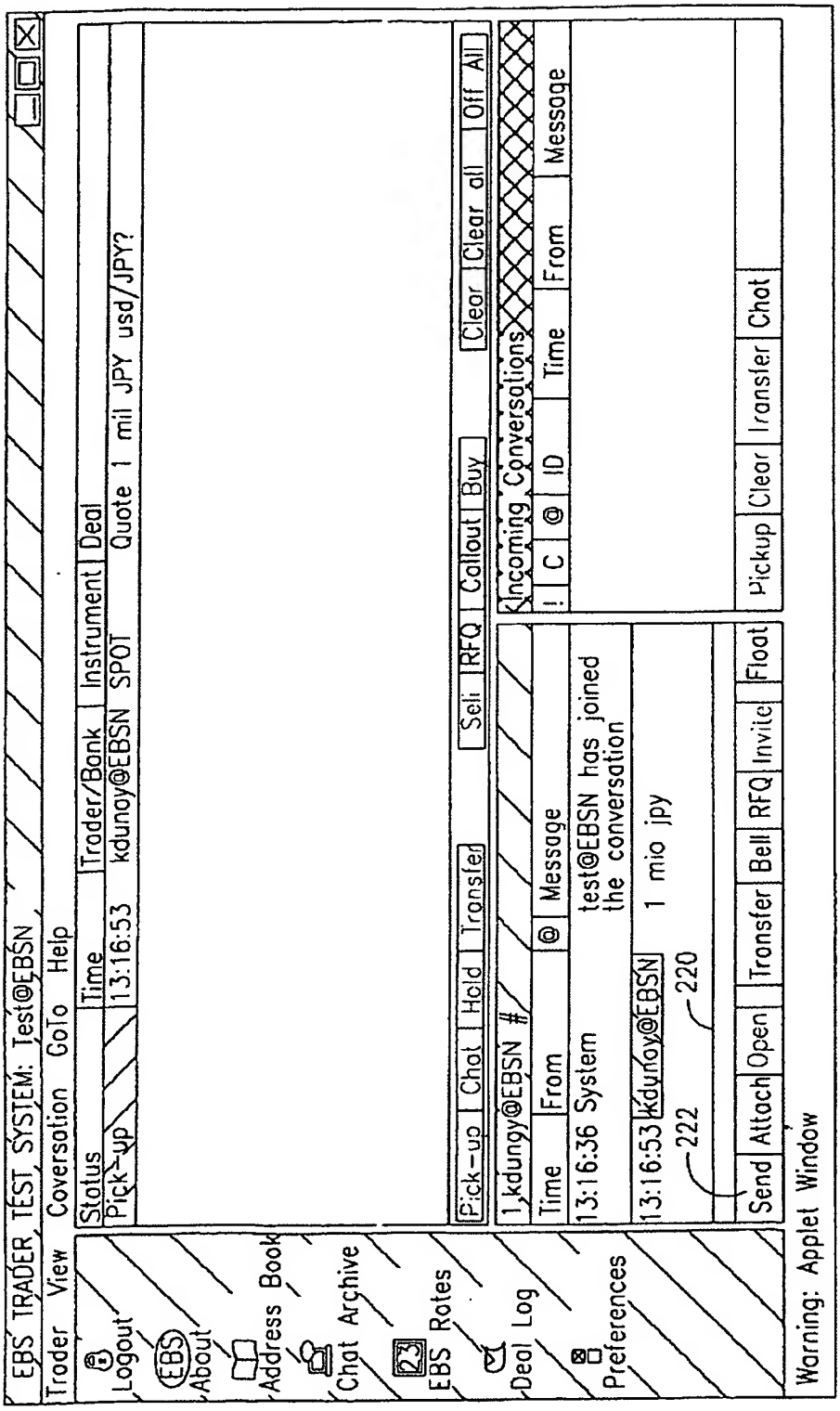
EBS TRADER TEST SYSTEM: Test@EBSN
Trader View Coversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status
Time
Trader/Bank
Instrument
Deal
Pick-up
13:16:53
kdungy@EBSN
SPOT
Quote 1 mil JPY usd/JPY?
Pick-up
Chat
Hold
Transfer
Sell
RFQ
Callout
Buy
Clear
Clear all
Off All
1,kdungy@EBSN #
Time
From
@
Message
13:16:36 System
test@EBSN has joined the conversation
13:16:53 kdungy@EBSN
1 mio jpy
222
220
Send
Attach
Open
Transfer
Bell
RFQ
Invite
Float
Incoming Conversations
!
C
@
ID
Time
From
Message
Pickup
Clear
Transfer
Chat
Warning: Applet Window

FIG. 17

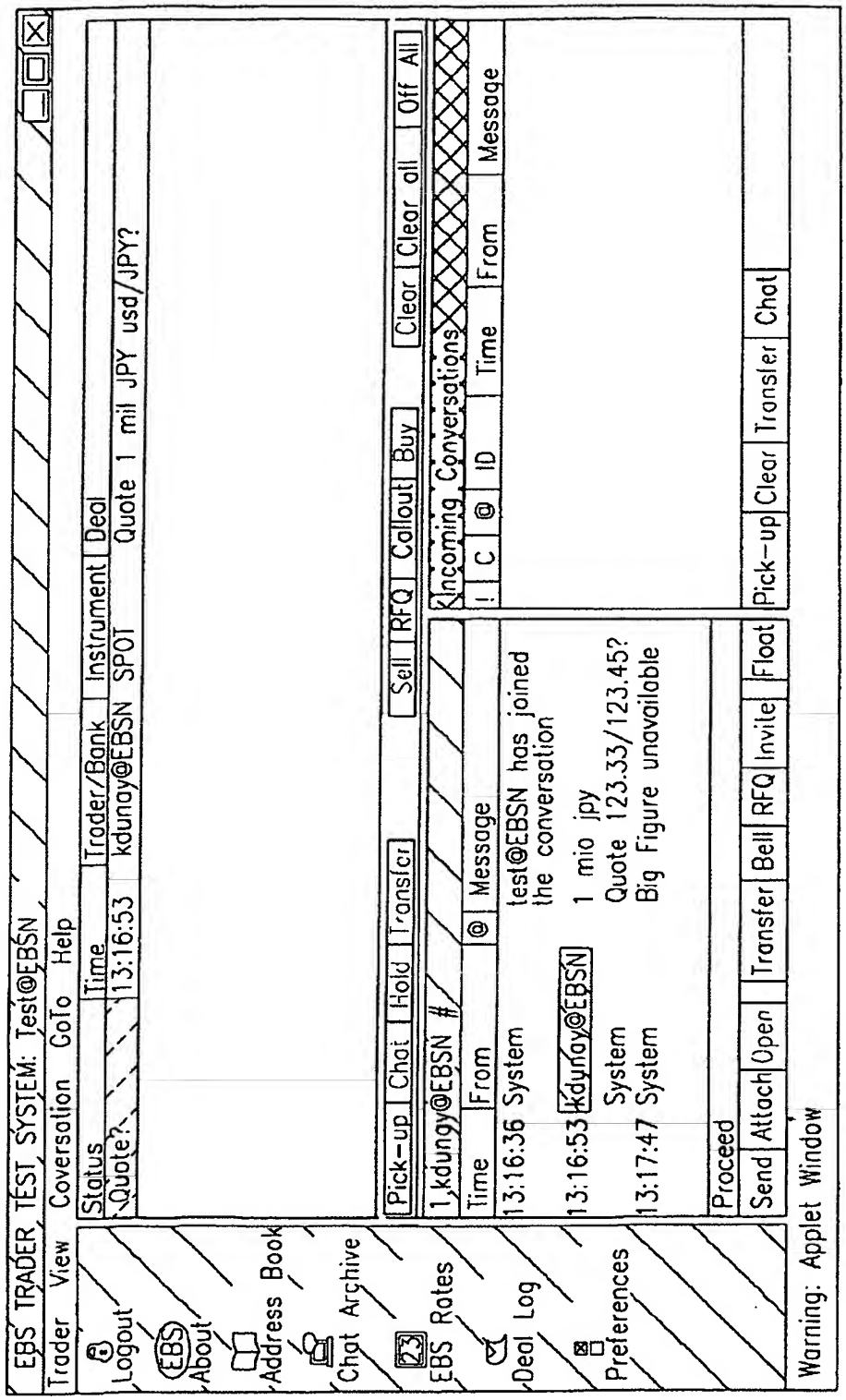
EBS TRADER TEST SYSTEM: Test@EBSN
Trader View Coversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
Quote? 13:16:53 kdunay@EBSN SPOT Quote 1 mil JPY usd/JPY?
Pick-up Chat Hold Transfer
Sell RFQ Callout Buy
Clear Clear all Off All
1,kdunay@EBSN #
Incoming Conversations
Time From @ Message
! C @ ID Time From Message
13:16:36 System test@EBSN has joined the conversation
13:16:53 kdunay@EBSN 1 mio jpy
System Quote 123.33/123.45?
13:17:47 System Big Figure unavailable
Proceed
Send Attach Open Transfer Bell RFQ Invite Float
Pick-up Clear Transfer Chat
Warning: Applet Window

FIG. 18

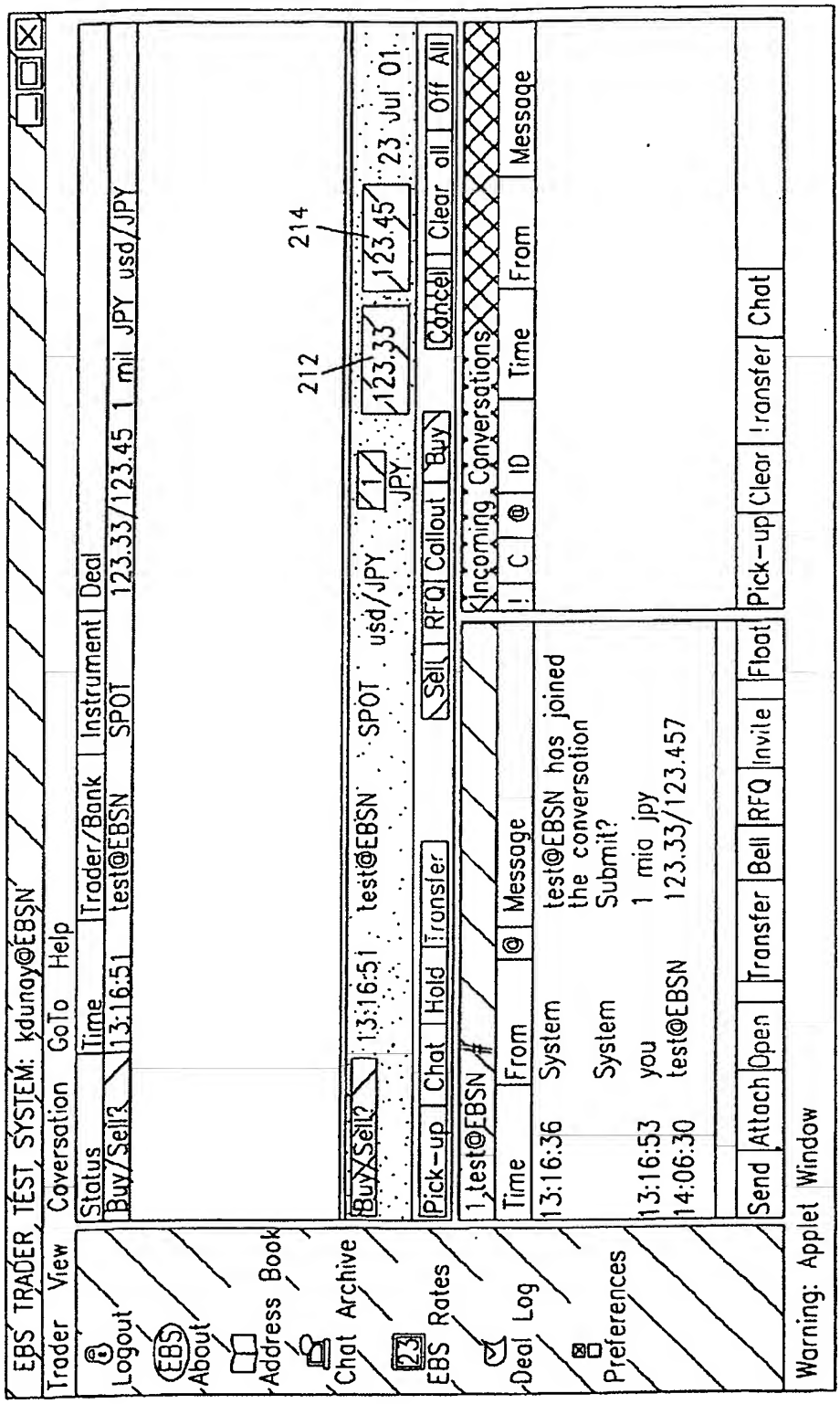
EBS TRADER TEST SYSTEM: kdunay@EBSN
Trader View Conversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
Buy/Sell? 13:16:51 test@EBSN SPOT 123.33/123.45 1 mil JPY usd/JPY
212
214
Buy/Sell? 13:16:51 test@EBSN SPOT usd/JPY 1 123.33 123.45 23 Jul 01
JPY
Pick-up Chat Hold Transfer Sell RFQ Callout Buy Cancel Clear all Off All
1 test@EBSN #
Time From @ Message
13:16:36 System test@EBSN has joined the conversation
System Submit?
13:16:53 you 1 mio jpy
14:06:30 test@EBSN 123.33/123.457
Send Attach Open Transfer Bell RFQ Invite Float
Incoming Conversations
! C @ ID Time From Message
Pick-up Clear Transfer Chat
Warning: Applet Window

FIG. 19

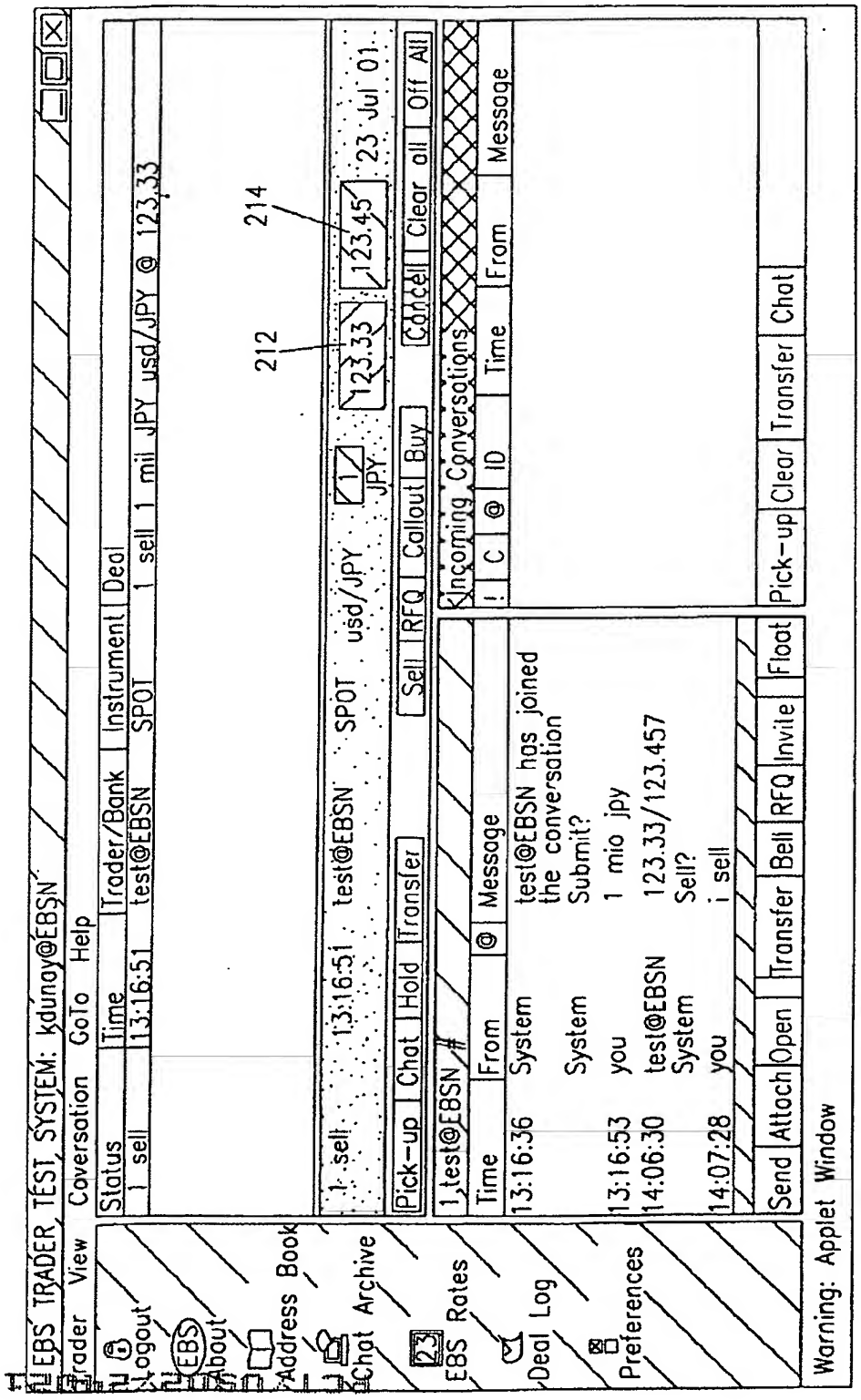
EBS TRADER TEST SYSTEM: kdunoy@EBSN
Trader View Coversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
1 sell 13:16:51 test@EBSN SPOT 1 sell 1 mil JPY usd/JPY @ 123.33
212
214
1 sell 13:16:51 test@EBSN SPOT usd/JPY 1 JPY 123.33 123.45 23 Jul 01
Pick-up Chat Hold Transfer Sell RFQ Callout Buy Cancel Clear all Off All
1 test@EBSN #
Time From @ Message
13:16:36 System test@EBSN has joined the conversation
System Submit?
13:16:53 you 1 mio jpy
14:06:30 test@EBSN 123.33/123.457
System Sell?
14:07:28 you i sell
Send Attach Open Transfer Bell RFQ Invite Float
Incoming Conversations
! C @ ID Time From Message
Pick-up Clear Transfer Chat
Warning: Applet Window

FIG. 20

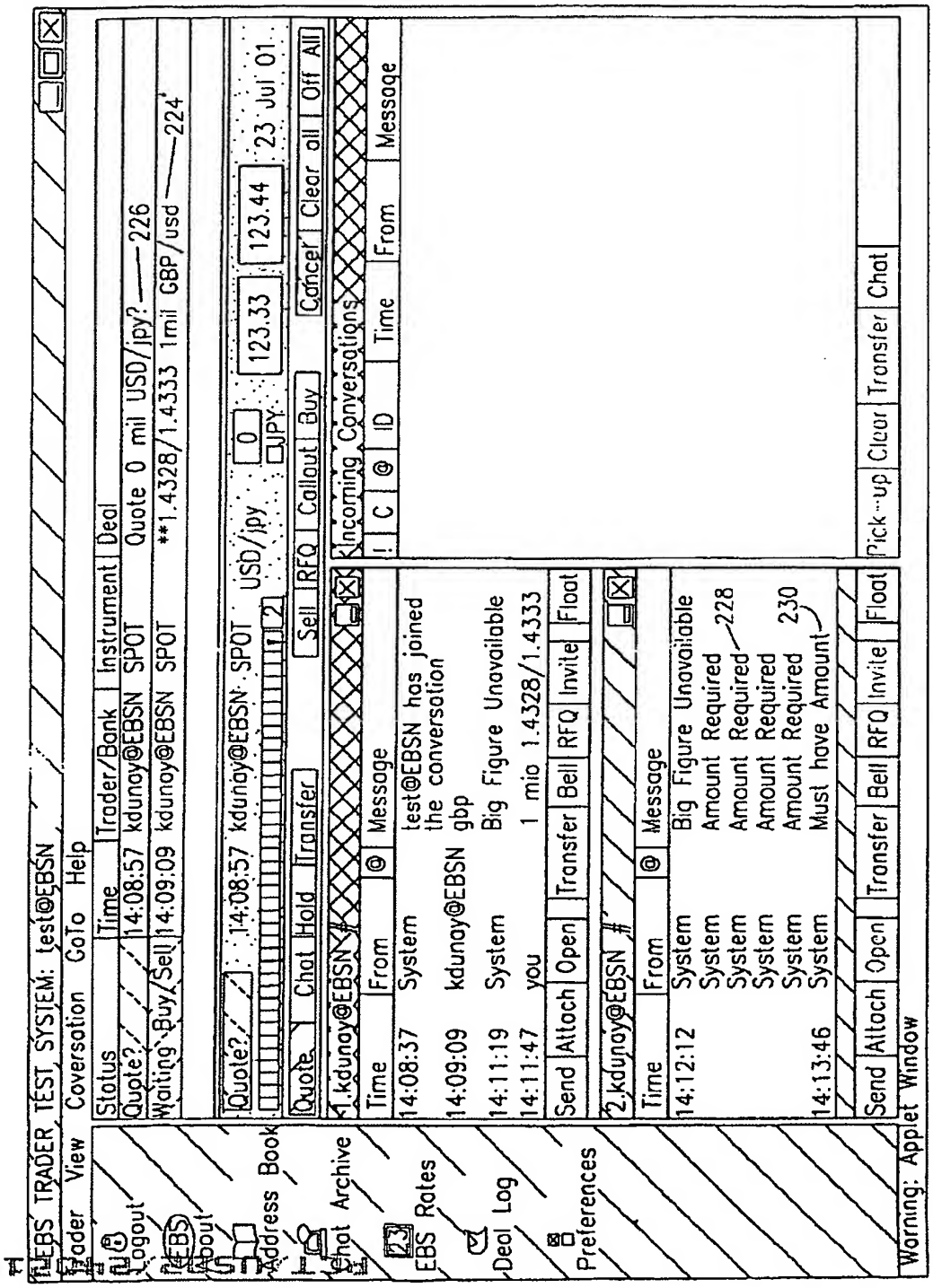
EBS TRADER TEST SYSTEM: test@EBSN
Trader View Coversation GoTo Help
Logout
EBS About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status
Time
Trader/Bank
Instrument
Deal
Quote?
14:08:57 kdunay@EBSN SPOT
Quote 0 mil USD/jpy?
226
Waiting Buy/Sell
14:09:09 kdunay@EBSN SPOT
**1.4328/1.4333 1mil GBP/usd
224
Quote?
14:08:57 kdunay@EBSN SPOT
USD/jpy
0
123.33
123.44
23 Jul 01
JPY
Quote
Chat Hold Transfer
Sell RFQ Callout Buy
Cancel Clear all Off All
1.kdunay@EBSN #
Time
From
@
Message
14:08:37 System test@EBSN has joined the conversation
14:09:09 kdunay@EBSN gbp
14:11:19 System Big Figure Unavailable
14:11:47 you 1 mio 1.4328/1.4333
Send Attach Open Transfer Bell RFQ Invite Float
2.kdunay@EBSN #
Time
From
@
Message
14:12:12 System Big Figure Unavailable
System Amount Required
228
System Amount Required
System Amount Required
230
System Amount Required
14:13:46 System Must have Amount
Send Attach Open Transfer Bell RFQ Invite Float
Incoming Conversations
!
C
@
ID
Time
From
Message
Pick-up Clear Transfer Chat
Warning: Applet Window

FIG. 21

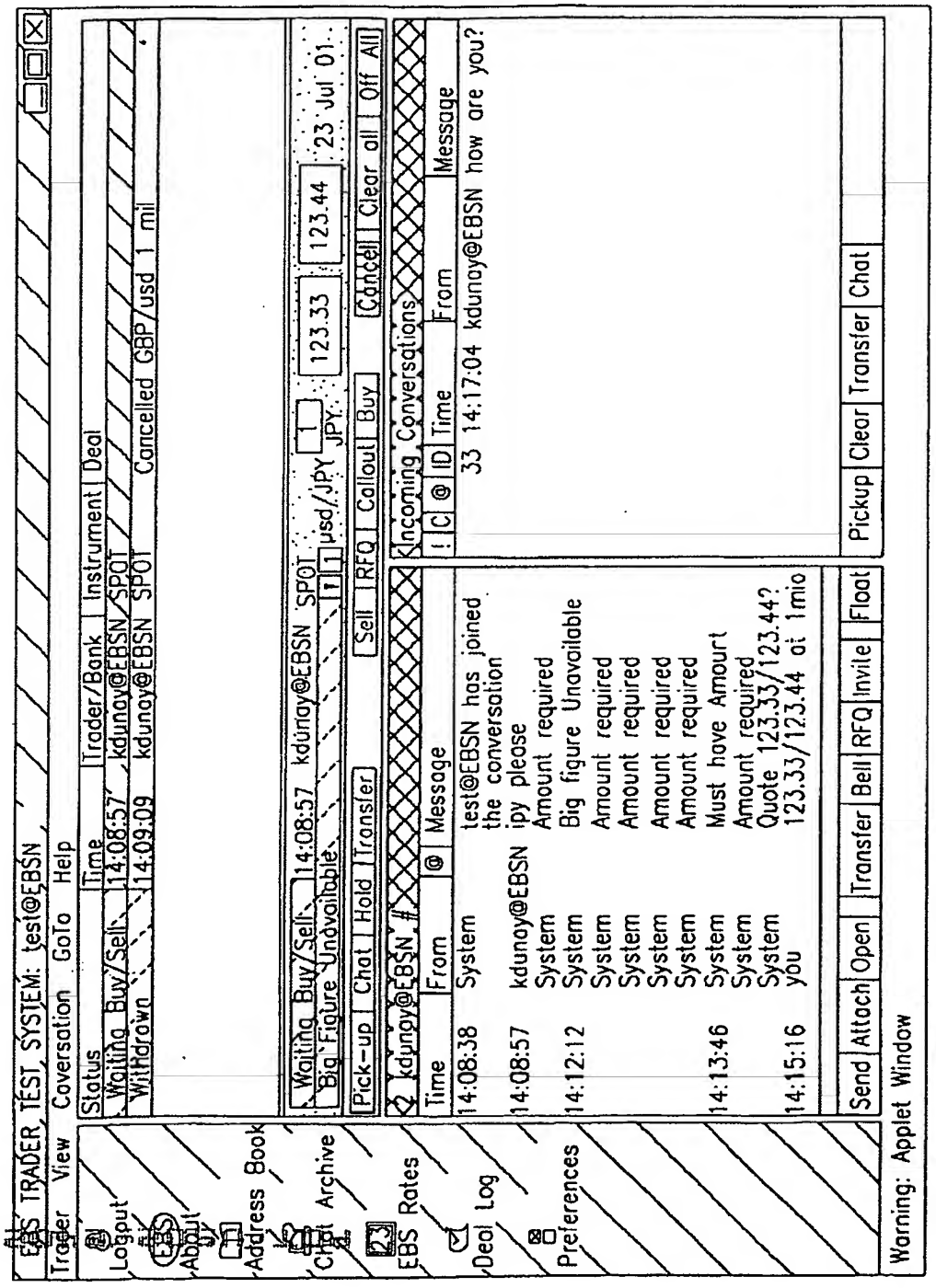
EBS TRADER TEST SYSTEM: test@EBSN
Trader View Conversation GoTo Help
Logout
About
Address Book
Chat Archive
EBS Rates
Deal Log
Preferences
Status Time Trader/Bank Instrument Deal
Waiting Buy/Sell 14:08:57 kdunay@EBSN SPOT
Withdrawn 14:09:09 kdunay@EBSN SPOT Cancelled GBP/usd 1 mil
Waiting Buy/Sell 14:08:57 kdunay@EBSN SPOT usd/JPY 1 123.33 123.44 23 Jul 01
Big Figure Unavailable usd/JPY
Pick-up Chat Hold Transfer Sell RFQ Callout Buy Cancel Clear all Off All
kdunay@EBSN #
Time From @ Message
14:08:38 System test@EBSN has joined the conversation
14:08:57 kdunay@EBSN ipy please
System Amount required
14:12:12 System Big figure Unavailable
System Amount required
System Amount required
System Amount required
System Amount required
14:13:46 System Must have Amount
System Amount required
System Quote 123.33/123.44?
14:15:16 you 123.33/123.44 at 1mio
Send Attach Open Transfer Bell RFQ Invite Float
Incoming Conversations
! C @ ID Time From Message
33 14:17:04 kdunay@EBSN how are you?
Pickup Clear Transfer Chat
Warning: Applet Window

FIG. 22